# DEPARTMENT OF AGRICULTURE APPROPRIATIONS FOR 1961

## HEARINGS

BEFORE THE

## SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS HOUSE OF REPRESENTATIVES

EIGHTY-SIXTH CONGRESS

SECOND SESSION

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SUBCOMMITTEE ON DEPARTMENT OF AGRICULTURE AND RELATED AGENCIES APPROPRIATIONS

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### PART 1

AGRICULTURAL CONSERVATION PROGRAM
AGRICULTURAL RESEARCH SERVICE
BUDGET FOR THE DEPARTMENT OF AGRICULTURE
EXTENSION SERVICE
FARMERS COOPERATIVE SERVICE
GENERAL AGRICULTURAL OUTLOOK
SOIL CONSERVATION SERVICE

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# DEPARTMENT OF AGRICULTURE APPROPRIATIONS FOR 1961

MONDAY, FEBRUARY 15, 1960.

## THE BUDGET FOR THE DEPARTMENT OF AGRICULTURE

### WITNESSES

**RALPH S. ROBERTS, ADMINISTRATIVE ASSISTANT SECRETARY OF AGRICULTURE**
**CHARLES L. GRANT, DIRECTOR OF FINANCE AND BUDGET OFFICER**
**LEE A. DASHNER, DEPUTY DIRECTOR OF FINANCE**

Mr. WHITTEN. Gentlemen, the committee will come to order. We are pleased to have Mr. Ralph S. Roberts, Administrative Assistant Secretary of Agriculture, Mr. Charles L. Grant, Director of Finance and Budget Officer and Mr. Lee A. Dashner, Deputy Director of Finance. We start these hearings with the realization that everything is not completely all right in the field of agriculture and to support that I can quote a whole lot of different people of different political beliefs and different feelings and different positions. Mr. Marshall and I have offered a bill to correct these matters without expense to the Government; our bill naturally was referred to another committee of the Congress so we will have to bide our time with patience.

Mr. Roberts, you became familiar with the work of this committee during the years when you were budget officer of the Department. We should be glad to discuss matters with you or turn directly to the budget as you might think appropriate.

### APPROPRIATIONS, 1960 AND ESTIMATES, 1961

We shall insert pages 4 through 7 of the committee print in the record at this point.

(Pages 4 through 7 of committee print follow:)

## DEPARTMENT OF AGRICULTURE

### TITLE I—REGULAR ACTIVITIES (ANNUAL APPROPRIATIONS)

| Item | Appropriations, 1960 | Budget estimates, 1961 | Budget estimates, 1961, compared with appropriations, 1960 |
|---|---|---|---|
| Agricultural Research Service: | | | |
| Salaries and expenses: | | | |
| Research | $67,721,590 | $68,981,700 | +$1,260,110 |
| Plant and animal disease and pest control | 49,800,600 | 48,775,600 | −1,025,000 |
| Meat inspection | 21,324,900 | 21,562,700 | +237,800 |
| Total | 138,847,090 | 139,320,000 | +472,910 |
| Salaries and expenses (special foreign currency program) | 12,056,500 | 15,131,500 | +3,075,000 |
| Construction of facilities | | 900,000 | +900,000 |
| State experiment stations: | | | |
| Payments to States and Puerto Rico | 31,553,708 | 32,553,708 | +1,000,000 |
| Penalty mail | 250,000 | 250,000 | |
| Total | 31,803,708 | 32,803,708 | +1,000,000 |
| Total, Agricultural Research Service | 182,707,298 | 188,155,208 | +5,447,910 |
| Extension Service: | | | |
| Payments to States and Puerto Rico | 53,715,000 | 56,580,000 | +2,865,000 |
| Retirement costs for extension agents | 5,674,375 | 5,961,000 | +286,625 |
| Penalty mail | 2,491,307 | 2,491,307 | |
| Federal Extension Service | 2,242,540 | 2,392,660 | +150,120 |
| Total, Extension Service | 64,123,222 | 67,424,967 | +3,301,745 |
| Farmer Cooperative Service | 615,800 | 644,650 | +28,850 |
| Soil Conservation Service: | | | |
| Conservation operations | 82,322,000 | 82,882,000 | +560,000 |
| Watershed protection | 22,750,000 | 27,750,000 | +5,000,000 |
| Flood prevention | 18,000,000 | 15,000,000 | −3,000,000 |
| Water conservation and utilization projects | 75,000 | | −75,000 |
| Great Plains conservation program | 10,000,000 | 10,000,000 | |
| Total, Soil Conservation Service | 133,147,000 | 135,632,000 | +2,485,000 |
| Agricultural Conservation Program Service: Agricultural conservation program | 241,500,000 | 242,600,000 | +1,100,000 |
| Agricultural Marketing Service: | | | |
| Marketing research and service: | | | |
| Marketing research and agricultural estimates | 15,412,500 | 16,571,500 | +1,159,000 |
| Marketing services | 26,054,600 | 26,570,400 | +515,800 |
| Total | 41,467,100 | 43,141,900 | +1,674,800 |
| Payments to States and possessions | 1,195,000 | 1,195,000 | |
| School lunch program | [1] 110,000,000 | [1] 110,000,000 | |
| Total, Agricultural Marketing Service | 152,662,100 | 154,336,900 | +1,674,800 |
| Foreign Agricultural Service: | | | |
| Salaries and expenses | [2] 3,518,300 | [2] 4,637,300 | +1,119,000 |
| Salaries and expenses (special foreign currency program) | 5,843,378 | 14,621,800 | +8,778,422 |
| Total, Foreign Agricultural Service | 9,361,678 | 19,259,100 | +9,897,422 |
| Commodity Exchange Authority | 909,500 | 941,325 | +31,825 |
| Commodity Stabilization Service: | | | |
| Acreage allotments and marketing quotas | 39,135,000 | 40,135,000 | +1,000,000 |
| Sugar Act program | 71,500,000 | 74,500,000 | +3,000,000 |
| Conservation reserve program | 335,000,000 | 361,783,000 | +26,783,000 |
| Total, Commodity Stabilization Service | 445,635,000 | 476,418,000 | +30,783,000 |
| Federal Crop Insurance Corporation: Operating and administrative expenses | 6,376,700 | 6,376,700 | |
| Rural Electrification Administration: Salaries and expenses | 9,632,000 | 9,632,000 | |
| Farmers Home Administration: Salaries and expenses | 30,744,750 | 31,467,650 | +722,900 |
| Office of the General Counsel | 3,162,025 | 3,358,845 | +196,820 |
| Office of Secretary | 2,881,000 | 2,899,500 | +18,500 |
| Office of Information | 1,431,665 | 1,478,685 | +47,020 |
| Library | 831,900 | 895,660 | +63,760 |
| Total, regular activities | 1,285,721,638 | 1,341,521,190 | +55,799,552 |

[1] In addition, $43,657,248 transferred from sec. 32 funds in fiscal year 1960, and transfer of $40,000,000 proposed for fiscal year 1961.

[2] In addition, $2,493,000 transferred from sec. 32 funds in fiscal year 1960, and transfer of $2,593,000 proposed for fiscal year 1961.

## TITLE II—CORPORATIONS

| Item | Appropriations, 1960 | Budget estimates, 1961 | Budget estimates, 1961, compared with appropriations, 1960 |
|---|---|---|---|
| Federal Crop Insurance Corporation: Administrative and operating expenses | ($2,330,000) | ($2,830,000) | (+$500,000) |
| Commodity Credit Corporation: | | | |
| Restoration of capital impairment | 1,435,424,413 | 1,325,000,000 | −110,424,413 |
| Reimbursements for special activities: | | | |
| International Wheat Agreement | 63,875,000 | 49,042,000 | −14,833,000 |
| Emergency famine relief | 104,508,000 | 115,000,000 | +10,492,000 |
| Sales for local currencies (Public Law 480) | 968,016,000 | 881,000,000 | −87,016,000 |
| Migratory waterfowl feed | 35,000 | 35,000 | |
| Bartered materials for stockpile | 129,000,000 | 422,950,000 | +293,950,000 |
| Animal disease eradication | 1,056,500 | | −1,056,500 |
| Grading and classing activities | 1,607,000 | 715,000 | −892,000 |
| Total, reimbursements for special activities | 1,268,097,500 | 1,468,742,000 | +200,644,500 |
| Administrative expense limitation | (42,800,000) | (48,428,000) | (+5,628,000) |
| Total, Corporations | 2,703,521,913 | 2,793,742,000 | +90,220,087 |

## TITLE III—RELATED AGENCIES

| | | | |
|---|---|---|---|
| Limitation on administrative expenses: Farm Credit Administration | ($2,125,000) | ($2,480,000) | (+$355,000) |
| Total, titles I, II, and III | 3,989,243,551 | 4,135,263,190 | +146,019,639 |

### *Loan authorizations*

| Item | Authorizations, 1960 | Budget estimates, 1961 | Budget estimates compared with 1960 authorizations |
|---|---|---|---|
| Rural Electrification Administration: | | | |
| Electrification | $136,000,000 | $110,000,000 | −$26,000,000 |
| Telephone | 104,000,000 | 80,000,000 | −24,000,000 |
| Total, Rural Electrification Administration | 240,000,000 | 190,000,000 | −50,000,000 |
| Farmers Home Administration: | | | |
| Farm ownership and farm housing | 24,000,000 | 20,000,000 | −4,000,000 |
| Farm operation (production and subsistence) | 180,000,000 | 154,000,000 | −26,000,000 |
| Soil and water conservation | 2,000,000 | 3,000,000 | +1,000,000 |
| Total, Farmers Home Administration | 206,000,000 | 177,000,000 | −29,000,000 |
| Total, loan authorizations | 446,000,000 | 367,000,000 | −79,000,000 |

### *Permanent authorizations*

| Item | Authorizations, 1960 | Budget estimates, 1961 | Budget estimates compared with 1960 authorizations |
|---|---|---|---|
| Agricultural Research Service: Animal quarantine station, Clifton, N.J. | $30,000 | | −$30,000 |
| Agricultural Marketing Service: | | | |
| Removal of surplus agricultural commodities (sec. 32) | 251,446,365 | $318,000,000 | +66,553,635 |
| Perishable Agricultural Commodities Act fund | 670,000 | 670,000 | |
| Total, Agricultural Marketing Service | 252,116,365 | 318,670,000 | +66,553,635 |
| Commodity Stabilization Service: National Wool Act | 50,050,313 | 51,000,000 | +949,687 |
| Total, permanent appropriations | 302,196,678 | 369,670,000 | +67,473,322 |

Mr. ROBERTS. Mr. Chairman, in an effort to expedite the work of the committee I suggest that Mr. Grant, our budget officer and director of finance, present to you the principal issues in the budget and explain the overall problem that it presents. If there are questions that I can help answer following his presentation I would be glad to do so; or to answer any question the committee may have that falls within my area of responsibility, even though it may not involve the budget. I will be here again when the committee holds its hearings on the appropriations for which I am particularly responsible and will be glad to respond at that time. On the other hand, if there are general questions involving the administrative management of the Department, I would be glad to answer them.

Mr. WHITTEN. We might proceed then, Mr. Grant, with your presentation as budget officer.

## GENERAL STATEMENT

Mr. GRANT. Thank you very much. I appreciate this opportunity to review briefly the major features of the 1961 budget estimates for the Department. In order to conserve your time I will confine my comments to the major agencies and items, knowing that you will want to go into the details when the agencies themselves are before you. For this purpose I am using the summary appropriation table which we have designated as "Table 1." For the annual appropriations for regular activities which will be considered by this committee, table 1 reflects a total estimate of $1,341 million, an increase of $55.7 million above fiscal year 1960.

## EMPLOYEE HEALTH BENEFIT COSTS

This includes an increase of $2,274,430 for employee health benefit costs, which, for easy reference, we have shown in a separate column—the middle column of the table. You will recall that last year the Congress enacted Public Law 86–382 which provides a program of health insurance for Federal employees. This is a cost-sharing arrangement between the Federal Government and the employees. It becomes effective with the first pay period in July 1960. We have estimated to the best of our ability the amounts which will be required for the Government's share of these employee health benefit costs, and, to the extent that such costs cannot be absorbed within available funds, increases to meet this added expense are proposed in the 1961 budget. The middle column of the table reflects increases needed on the base for 1961, that is, on the level of funds available in 1960. Program increases requested for 1961—shown in the column headed "Other"—include health benefit costs related to such increases. For the Department as a whole, and including transfers, reimbursements, and all other funds, employee health benefit costs will amount to almost $4.3 million in 1961.

Mr. WHITTEN. Mr. Grant, I have heard a number of Agricultural Conservation Service people, office managers and other employees who are familiar with the background, make a distinction that they are full-time employees of the Federal Government but not employees in the category as to come within that law. Is that correct?

Mr. GRANT. That is correct. Employees of the county ASC committees are not Federal employees in the usual sense.

Mr. WHITTEN. They are paid 100 percent by the Federal Government.

Mr. GRANT. That is correct. However, they are not paid by Federal checks. The Federal Government makes payments to the county committees who in turn hire the employees and pay them directly. These employees are not under the civil service system.

Mr. WHITTEN. How many other groups of a similar nature do you have in the Department of Agriculture that are left out of this health program?

Mr. GRANT. They are not covered unless they are defined by the Civil Service Commission as Federal employees for purposes of this law. In the case of extension agents it is my understanding that the determination is made within each State. If a State wishes to work out a cost-sharing arrangement whereby the State would pay a share of the cost and the employees would pay the remainder, the extension agent can participate. That is on a State-by-State basis. The same situation exists with respect to the life insurance program. So while the extension agents have cooperative agent appointments the State, rather than the Federal Government, pays the employer's share of the costs.

Mr. WHITTEN. The health part?

Mr. GRANT. The health part, and also the life insurance program. I am not sure about the status of the Milk Marketing Administration employees with respect to these programs.

Mr. WHITTEN. You might enlarge this. A number of bills have been introduced, and a number of people are very much interested in this area, and I thought that in these hearings we might develop what the situation is that might be of value to the membership generally.

(The following statement was submitted later.)

Employees of the Cooperative Extension Service holding Federal appointments are covered on the basis described above.

Under existing law, employees of the Milk Marketing Administration, while paid from fees collected from producers, are Federal employees and participate in the health benefits program on the same basis as other Federal employees.

There are no other groups of employees paid wholly from Federal funds (other than the county ASC committee employees, concerning whom the situation is as outlined in the testimony above).

Mr. ROBERTS. Mr. Chairman, I might add one word here. We have given a lot of thought and consideration to what might be done for the employees of the county committees since they do not have either the Federal insurance or the health benefits. They come under the social security provisions of the law so they do have some compensating adjustment there in lieu of retirement annuity. We are now looking carefully into the possibility of setting up insurance and health programs that would be applicable only to the county committee employees where we would hope that it might be possible for the Federal Government to contribute in part to a fund that would enable them to enjoy some of these other benefits.

Mr. WHITTEN. When you state you are giving thought to it now, by that do you mean you have authority in the existing law or do you mean that the Department will take a position?

Mr. ROBERTS. We do not have authority under existing law to go as far as they are proposing, but we are exploring the possibility of doing something, and of making some recommendations.

Mr. WHITTEN. I have had a lot of them talk to me about it. This being an Appropriations subcommittee it is beyond the reach of this committee to make these changes in the law I want to make it clear. But since so many have talked to me I wanted it brought out that this program has gone on for 20-odd years and for all practical purposes they are Federal employees since they work full time for the Federal Government. They are paid entirely by the Federal Government, and now it is a technical thing, a legal distinction so far as the laws are concerned, and it is pretty hard to draw any real distinction as for whom they work. Here again I want to make the record complete so that we might have someplace to turn to keep straight about it.

Unless there are questions about that you might proceed, Mr. Grant.

Mr. GRANT. This subject of employee health costs is discussed in detail in the preface to the explanatory notes.

Mr. WHITTEN. Pages 1 and 2 of the justifications will be inserted at this point in the record.

(Pages 1 and 2 follow:)

EXPLANATION OF INCREASES REQUESTED FOR EMPLOYEE HEALTH BENEFIT COSTS PURSUANT TO PUBLIC LAW 86-382

The budget estimates for 1961 include funds to cover the Government share of Federal employee health benefit costs pursuant to Public Law 86-382, the Federal Employees Health Benefits Act of 1959, approved September 28, 1959. Additional funds requested for employee health benefit costs applicable to the base for 1961 are reflected in a separate column in the project statements for each appropriation item concerned. Health benefit costs applicable to program increases for 1961 are included in each item of increase, and the project statements also indicate separately, as nonadd figures in brackets, the total health benefit costs applicable to the 1961 base and to the program increases for 1961. To avoid unnecessary repetition throughout the explanatory notes, an explanation common to all health benefit cost increases is provided here rather than under each appropriation involved.

The Federal Employee Health Benefits Act of 1959 provides that the Government will share with employees the cost of providing health benefit plans for the protection of employees and their dependents. The act becomes effective with the first full pay period in fiscal year 1961 (for most employees of the Department the effective date will be July 10, 1960). Federal costs of the health benefit program cannot be determined finally until benefit plans have been contracted with insurance companies and some experience with employee selection of alternative choices has been obtained. For purposes of estimating fiscal year 1961 costs, therefore, the Budget Bureau has asked all Federal agencies to assume that the Civil Service Commission will set the initial agency contribution per employee at the minimum rates authorized by law ($1.30 for self only, and $3.12 for self and family, on a biweekly basis). In the absence of reliable statistics, the Budget Bureau also asked for agencies to assume that (*a*) 90 percent of all employees would participate, and (*b*) 40 percent of participating employees would elect coverage for themselves only, and 60 percent for self and family. With a few minor exceptions in agencies where available information provided better guidelines, these assumptions on participation have been followed in developing the estimates.

Based on the foregoing assumptions, the 1961 budget estimates for the Department, exclusive of the Forest Service, which is considered in the appropriation bill for the Department of the Interior and related agencies, reflect a total of $3,466,921 estimated employee health benefit costs to all appropriations and funds available, including revolving funds, advances and reimbursements from other agencies, and trust funds. Of this total, the Department agencies propose absorption of $1,147,326. This is the maximum absorption that can be achieved without impairment of public programs and services for which the Department is

responsible. Of the $2,319,595 increase in appropriations requested, $2,274,430 relates to the 1961 appropriation base and $45,165 to program increases proposed for 1961.

The following tabulation summarizes total Federal employee health benefit costs estimated to be incurred by the Department in the fiscal year 1961:

*Federal employee health benefit costs*

| | Estimated costs applicable to 1961 | Estimated absorption | Appropriation increases requested |
|---|---|---|---|
| Total, Department of Agriculture | $4,261,246 | $1,399,651 | $2,861,595 |
| Deduct Forest Service | −794,325 | −252,325 | −542,000 |
| Net total (excluding Forest Service) | 3,466,921 | 1,147,326 | 2,319,595 |

The Federal costs of benefits to annuitants have not been reflected in these estimates since it is understood that estimates of appropriations to the Civil Service Commission are being presented for this purpose.

## Agricultural Research Service

Mr. Grant. I would like now to comment on the major changes in our 1961 budget, which are shown in the column "Other" and total $53,525,122. The first item of $762,910 for the Agricultural Research Service is a net increase consisting of a decrease of $3,150,000 to eliminate nonrecurring items provided in the 1960 appropriation act for construction of laboratories, an increase of $1,502,800 for research on pesticide residues, and an increase of $2,212,800 for utilization research. This last item includes a proposal to shift $700,000 within this appropriation from farm research to utilization research. Also proposed is an increase of $805,600 for opening the Animal Disease Research Laboratory at Ames, Iowa, which we expect to be completed about a year from now.

The next item, "Plant and animal disease and pest control", shows a net reduction of $1,331,600. The budget proposes a decrease of $1,250,000 in the brucellosis eradication program and $850,000 in the screw worm eradication program in Florida which is moving along toward satisfactory completion. There is an increase of $504,600 for plant quarantine protection at ports of entry.

### Salaries and Expenses (Special Foreign Currency Program)

The next item, "Salaries and expenses (special foreign currency program)" reflects an estimate of $15,131,500 for the purchase of foreign currencies for research abroad. In the past the Department has received allocations of foreign currencies generated by sales of surplus commodities under Public Law 480, which as you know provides for a number of specific uses of such foreign currencies. Most of these currencies have been used for loans and grants within the countries in which the commodities are sold, but some of them have been made available to the Department for research abroad, as well as for market development activities under the Foreign Agricultural Service. (A similar appropriation for the purchase of foreign currencies is also proposed in the budget for the Foreign Agricultural Service.) The volume of foreign currencies available has grown and the complexities

involved have reached the point where it was decided that a better means of control of the use of these currencies should be proposed. This proposal arises in part out of the request of the Appropriations Committees last year, particularly the request from the Senate Appropriations Committee to the Budget Bureau to develop a better means of control.

As a part of this proposal for better budgetary control, the budget proposes dollar appropriations, and this is applicable to all uses of foreign currencies except loans and grants. The dollars provided by the appropriations would be used to purchase currencies from the Treasury. These dollars would be then returned to the Commodity Credit Corporation and would reduce subsequent appropriations needed to reimburse the Corporation for the cost of Public Law 480. This matter is presented in some detail by the Budget Bureau in Special Analysis E of the 1961 budget and in the special report which was submitted to Congress, I believe within the last 10 days or so.

In addition to the appropriation of dollars for 1961, the language included in the budget for these two items also provides for the appropriation as of June 30, 1960, of dollars to cover all unexpended balances of foreign currencies previously allocated to the Department. The funds for the Agricultural Research Service are used for market development research under section 104(a) of Public Law 480 and farm, forestry, marketing, and other agricultural research under section 104(k).

Mr. WHITTEN. In the last Public Law 480 bill it is my recollection that the authorization bill provided that not less than a given amount should be set aside for a period of years for market development, 5 percent I believe.

Mr. GRANT. That is right.

Mr. WHITTEN. That provision has been set aside insofar as the budget recommendations here are concerned. So far as your recommendations are concerned we are dealing with that on a year-by-year basis.

Mr. GRANT. That section provides that not less than 5 percent of the funds becoming available as receipts for sales of foreign currencies, as well as through loan repayments, shall be set aside and be used only for market development work by the Foreign Agricultural Service and market development research by the Agricultural Research Service. The act provides that they may not be used for any other purpose. The appropriations proposed in the budget will not cover all of the 5-percent proceeds which will become available in future years or which may become available in 1961. We do not know, and no one can determine now, how much will become available in 1961.

Mr. WHITTEN. In other words, while that bill was passed prior to this change in the method of handling foreign currencies, that bill contemplated that a given percentage of the currencies themselves be committed to this purpose. The course recommended in this bill is that we appropriate money to buy currencies on a year-to-year basis.

Mr. GRANT. That is correct. However, the amendment to section 104(a) provided that foreign currencies up to 5 percent may be used

under that section only in such amounts as may be provided in appropriation acts. The 1961 budget proposes an appropriation of dollars in lieu of providing for the use of foreign currencies expressed in dollar equivalents.

Mr. WHITTEN. But it has that distinction?

Mr. GRANT. That is correct.

Mr. WHITTEN. I am not going to dig into what the comparison is at this point because we will have that opportunity when we get to those who deal directly with the program. I would like to ask you this general question; the arrangement is that the Commodity Credit Corporation would collect the money back. In other words this is a paper transaction. The Department buys the currency and the currency is handed back to the Commodity Credit Corporation. So it goes from an appropriated item over to the reduction of the impairment.

Mr. GRANT. That is correct.

Mr. WHITTEN. To that extent it reduces the cost to the Commodity Credit Corporation.

Mr. GRANT. The eventual appropriation to reimburse the corporation for its losses.

Mr. WHITTEN. And to the extent that those appropriations are made to other Government agencies they don't come into the Commodity Credit Corporation costs. It relieves that Corporation altogether and gets down into the agency where the cost is incurred.

Mr. ROBERTS. From that standpoint, Mr. Chairman, this is advantageous to the Commodity Credit Corporation because we do get a payment of dollars back currently for the foreign currencies acquired and it does allocate the cost back to the proper program in the Government that is spending the money.

Mr. WHITTEN. By this means we get a little better look at the use of foreign currencies because presumably they would not be spent unless an appropriate agency buys them. Let us say that the Appropriations Committee should cut this item to $10 million, and I do not mean to be recommending any such course in advance of the hearing of the testimony, but if Congress were to approve only $10 million or $15 million, that would still leave these foreign currencies.

Mr. GRANT. They would remain to the credit of the Treasury in the banks overseas.

Mr. WHITTEN. Now the other thing that I think might be brought out here, under the various bills that generate foreign currency isn't there a very small percentage of those currencies that might be generated that are subject to the budgeting process; a big percentage under the basic law committed to that country for that country's benefit?

Mr. GRANT. That is right.

Mr. WHITTEN. Could we have the appropriate information in the record as to the law at that point?

Mr. GRANT. Yes.

(The information requested is as follows:)

## Provisions of Law Affecting the Use of Foreign Currencies for Fiscal Year 1960

### A. Current authorizations to expend foreign currency receipts (without an appropriation)

1. Public Law 480 as amended authorizes such amounts as may be specified in appropriation acts to be used for—
   - Purchase of strategic and critical materials (sec. 104(b))
   - Leader-specialist exchanges authorized by Public Law 402, 80th Congress (Smith-Mundt Act) (sec. 104(h))
   - Translation of scientific and technical publications and support of scientific activities overseas (sec. 104(k))
   - Acquisition of buildings abroad (sec. 104(l))
   - Trade and agricultural fairs (sec. 104(m))
   - Acquisition and distribution of library materials (sec. 104(n))
   - Assistance to American-sponsored schools and the establishment of chairs and workshops in American studies (sec. 104(o))
   - Support of workshops and chairs in American studies (sec. 104(p))

2. Section 505(b) of the Mutual Security Act of 1954, as amended, authorizes the use by the Development Loan Fund, in amounts as specified in appropriation acts, of currencies received as repayments of loans and payment of interest under that act which are in excess of requirements for the educational/exchange program and for payment of U.S. obligations abroad.

### B. Permanent authorizations to expend foreign currency receipts (without an appropriation)

*"Country-use" purposes*

*Mutual security program.*—Section 103(c) of the Mutual Security Act of 1954, as amended, authorizes the furnishing of military assistance on terms of repayments and authorizes the use of foreign currencies received in repayment (as well as dollars received) to be used for purposes of the military assistance program. A limit of $175 million is established on the total amount of repayments (dollars and foreign currencies) which may be so used. (Estimates for 1960 assume no direct use of foreign currencies but include appropriation reimbursements of $38 million from the sale of currencies.)

Section 204(a) of the act authorizes all receipts (both dollars and foreign currencies) from operations of the Development Loan Fund to be credited to the Fund and used for the purposes of the Fund. (1960 estimate, $12 million.)

Section 402 of that act requires that not less than $175 million of the 1960 appropriations under the Mutual Security Act shall be used to finance the export and sale for foreign currencies of surplus agricultural commodities, and authorizes the use of the currencies received from such sales for the purposes of the Mutual Security Act. The 1960 appropriation for economic assistance includes an authorization to use the equivalent of $50,000 in local currencies for assistance to the American Research Hospital for Children in Poland. (1960 estimate, $150 million; equal to anticipated collections from such sales.)

Section 104 of Public Law 480 authorizes the use of currencies received under that act for loans and grants for the common defense (sec. 104(c)), and for economic development (secs. 104 (e) and (g)). (1960 estimate, $835 million.)

*Export Import Bank.*—Section 104(e) of Public Law 480 authorizes the use of foreign currencies received under that act for loans to U.S. private enterprise and other private enterprise projects which will facilitate use of surplus commodities, for investment in the purchasing country. (1960 estimate, $126 million.)

*U.S. programs*

*Mutual Security Program.*—Section 104(d) of Public Law 480 authorizes the use of foreign currencies received under that act for exports to third countries. (1960 estimate, $11,626,853.)

Section 400(c) of that act authorizes the President to use currencies accruing under that or any other act for American-sponsored schools and libraries abroad and for hospitals abroad founded or sponsored by citizens of the United States. (No estimate for 1960.)

*U.S. Information Agency.*—Section 104 of Public Law 480 authorizes the use of foreign currencies received under that act for translation, publication, and distribution of textbooks (104(i) up to $5 million each fiscal year) for binational centers (104(j)), and for preparation, distribution, and exhibition of audiovisual materials (104(r) up to $2,500,000 each fiscal year). Beginning in 1961, currencies are available under section 104(r) only as authorized in appropriation acts. (1960 estimate, $4,944,440.)

*Department of Agriculture.*—Section 104(a) of Public Law 480 authorizes the use of foreign currencies received under that act for development of agricultural markets abroad. The 1960 appropriation for "Salaries and expenses, Foreign Agricultural Service" contains a limitation of $1,310,000 equivalent in foreign currencies for expenses of the agricultural attaché service and for general operating expenses in carrying out the purposes of section 104(a). Beginning in 1961, however, currencies are available for this purpose only as authorized in appropriation acts. Section 104(f) of Public Law 480 authorizes the use of Public Law 480 currencies for payment of U.S. obligations abroad. The Commodity Credit Corporation has been allocated $100,000 in 1960 under this section with a waiver of the requirements of section 1415. Section 104(a) also requires that sale proceeds and Public Law 480 loan repayments, in an amount equivalent to not less than 5 percent of sales agreements, be made available for the purposes of this section. (Total 1960 estimate, $17,999,878.)

*Department of Defense.*—Public Law 765, 83d Congress, authorizes the use of currencies received under Public Law 480 for the construction or acquisition of housing and community facilities for families of Department of Defense personnel overseas. The law requires that the Commodity Credit Corporation be reimbursed from housing allowances which would otherwise be paid to occupants of the quarters, after deducting the costs of operation and maintenance. These reimbursements are paid directly to the Commodity Credit Corporation by the Department of Defense. (1960 estimate, $1,306,000.)

Section 104(c) of Public Law 480 authorizes the use of foreign currencies for Department of Defense programs which are for "common defense." (1960 estimate, $200,000; in addition to loans and grants under the mutual security program.)

*Department of State.*—Section 104 of Public Law 480 authorizes the use of foreign currencies generated by that act for international educational exchange activities (academic exchanges) (sec. 104(h)), and for assistance to American-sponsored schools (sec. 104(j)). Section 104(h) also requires that a special effort be made to provide currencies for the purposes of this subsection, including the setting aside of such amounts from sales proceeds and loan repayments up to $1 million a year in any one country for a period of not more than 5 years in advance, as may be determined by the Secretary of State. (1960 estimate, $28,320,415.)

The Foreign Buildings Act authorizes the use of proceeds from the sale of buildings (both dollars and foreign currencies) for the acquisition, maintenance, and operation of buildings abroad. These currencies are nearly always sold by Treasury to appropriation and funds, and the dollar receipts credited to the appropriation available for this purpose. (1960 estimate assumes no direct use of foreign currencies, but includes appropriation reimbursements of $4,797,515 from the sale of currencies.)

(In addition, the Department of State administers foreign currencies authorized by sec. 502(b) of the Mutual Security Act for use by committees of the Congress for local currency expenses under sec. 136 of the Legislative Reorganization Act of 1946, as amended. Accountability for such currencies is made through reports specified in the law.)

### CURRENCY-RESTRICTED APPROPRIATIONS

Certain appropriations are available in whole or in part solely for the purchase of foreign currencies:

*Departments of State and Justice, the Judiciary, and Related Agencies Appropriation Act, 1960*

Salaries and expenses, Department of State: Not less than $9 million of the total appropriation of $112,500,000.

Acquisition, operation, and maintenance of buildings abroad, Department of State: Not less than $16,739,000 of the total appropriation of $17,372,000.

International educational exchange activities, Department of State: Not less than $5,500,000 of the total appropriation of $23,210,000.

Salaries and expenses, U.S. Information Agency: Not less than $14 million of the total appropriation of $101,557,300.

### D. REGULAR APPROPRIATIONS

Regular appropriations are available to purchase currencies:

1. Section 1415 of the Supplemental Appropriation Act, 1953, prohibits the use of foreign currencies "except as provided for annually in appropriation acts." Section 208 of the General Government Matters Appropriation Act, 1960, pro-

vides that currencies may be used for any purpose for which appropriations are made, but only when reimbursement therefor is made to the Treasury from the applicable appropriation.

2. The 1960 military construction authorizing act (Public Law 86–149) requires that Public Law 480 currencies be used to the extent available and feasible in lieu of dollars for military construction in foreign countries, with reimbursement to CCC for the currencies so used. The Military Construction Appropriation Act requires a certification to the Congress that the use of foreign currencies is not feasible before any dollars appropriated in the act may be used to make payments under contracts for projects in foreign countries.

3. Section 514 of the Mutual Security Act requires that currencies arising under that or any other act be reserved by the Secretary of the Treasury upon request by the Secretary of State, for sale to the Department of State for international educational exchange activities under section 32(b)(2) of the Surplus Property Act of 1954, as amended.

Mr. ROBERTS. I wonder if this table which we have prepared on the foreign currency program, with respect to the foreign currencies might be helpful?

Mr. HORAN. Is that by countries?

Mr. ROBERTS. No, this is a summary of the funds proposed to be appropriated in dollars for the purchase of foreign currencies for the program.

Mr. WHITTEN. We might have that inserted in the record at this point.

(The table referred to follows:)

*Special foreign currency programs (U.S. dollar equivalents of foreign currency allocations under secs. 104 (a), (k), and (m) of Public Law 480 in 1959, and 1960, and appropriations in 1961* [1])

| | Allocations, 1959 | Allocations, 1960 | Appropriations, 1961 | Increase (+) or decrease (−) |
|---|---|---|---|---|
| Agricultural Research Service: | | | | |
| Market development research, sec. 104(a) | $7,596,484 | $12,056,500 | $3,090,000 | −$8,966,500 |
| Agricultural and forest research, sec. 104(k) | [2] | [2] | 12,041,500 | +12,041,500 |
| Total, Agricultural Research Service [3] | 7,596,484 | 12,056,500 | 15,131,500 | +3,075,000 |
| Foreign Agricultural Service: | | | | |
| Market development projects, sec. 104(a) | [4] 4,018,829 | [4] 4,893,378 | 13,621,800 | +8,728,422 |
| Agricultural attachés, sec. 104(a) | [4] 200,000 | [4] 950,000 | [5] | −950,000 |
| Agricultural and horticultural exhibitors, sec. 104(m) | 1,275,000 | | 1,000,000 | +1,000,000 |
| Total, Foreign Agricultural Service | 5,493,829 | 5,843,378 | 14,621,800 | +8,778,422 |
| Total | 13,090,313 | 17,899,878 | 29,753,300 | +11,853,422 |
| RECAPITULATION | | | | |
| Foreign currency dollar equivalents: | | | | |
| Sec. 104(a) | 11,815,313 | 17,899,878 | 16,711,800 | −1,188,078 |
| Sec. 104(k) | [2] | [2] | 12,041,500 | +12,041,500 |
| Sec. 104(m) | 1,275,000 | | 1,000,000 | +1,000,000 |
| Total, sec. 104 (a), (k), and (m), Public Law 480 | 13,090,313 | 17,899,878 | 29,753,300 | +11,853,422 |

[1] In addition, allocations of foreign currencies under sec. 104(f) were or are estimated as follows in 1960: For travel of U.S. agricultural specialists abroad, $40,000; for audit and end-use checks on food commodities donated abroad, $100,000.

[2] Allocations of dollars for the purchase of foreign currencies for purposes of agricultural and forest research from the appropriation "Funds appropriated to the President" amounted to $2,583,000 in 1959 and $1,307,000 in 1960.

[3] Work on these projects is carried on abroad by the Agricultural Research Service with the assistance of the Forest Service and the Agricultural Marketing Service in the review and appraisal of forest research and marketing research projects, respectively.

[4] Not allocated separately; amounts for agricultural attachés represent amounts of total allocation budgeted for that purpose.

[5] Agricultural attaché expenses, paid from foreign currencies in 1960, are proposed to be paid from the regular dollar appropriation "Salaries and expenses, Foreign Agricultural Service" in 1961.

Mr. MARSHALL. Once those surpluses are made available and converted to foreign currency does the Department maintain any control over the way those funds are expended?

Mr. GRANT. No; the sales agreement sets forth the basis on which the funds will be used. The biggest part of the funds are either loaned to the country or they are granted to the country, as the agreements provide. In addition the agreements usually provide that a portion of the currencies will be set aside for U.S. Government uses. On the average, this has amounted to only about 30 percent. Sometimes the United States uses are also specifically designated in the agreement; that is, the amount for market development work, for research, or for other uses under Public Law 480. As a part of this proposal for better budgetary control the report by the Budget Bureau contemplates that future sales agreements with the country will simply provide an amount for U.S. Government uses without any breakdown within the total.

Mr. MARSHALL. Perhaps I was not specific enough. I noticed in the President's report on Public Law 480 that in the Argentine there was a program called Operation Beef. I am not familiar with the program but apparently it was for the purpose of stimulating and improving beef production in the Argentine. Does the Department of Agriculture have anything to say in the determination as to what those funds can be used for in the production of beef in theArgentine?

Mr. GRANT. No, sir; not to my knowledge.

Mr. MARSHALL. That is all outside the hands of the Department?

Mr. GRANT. The only thing the Department has control over is the use of such funds as are allocated to the Department for market development activities and research. If the specific project you are talking about was carried on through ICA the Department had no responsibility for developing that program. I will be glad to find out for you.

Mr. MARSHALL. I was a little vague as to where the authority of the Department started and where it rested in the market development. If this sum was being administered by the ICA, I wanted to know that.

Mr. GRANT. That would not be within the Department's program.

Mr. MARSHALL. That is all. Thank you, Mr. Chairman.

(The following statement was submitted later.)

OPERATION BEEF

According to table XIII of the President's "11th Semiannual Report on Activities Carried on Under Public Law 480," Operation Beef is a program of the Argentine Government carried out with approximately $14.3 million in local currency allotted by the International Cooperation Administration under the loan authority of section 104(g) of Public Law 480.

EXCERPT FROM "THE 11TH SEMIANNUAL REPORT ON ACTIVITIES CARRIED ON UNDER PUBLIC LAW 480, 83D CONG., AS AMENDED," OUTLINING OPERATIONS UNDER THE ACT DURING THE PERIOD JULY 1, THROUGH DEC. 31, 1959

TABLE XIII.—*Section 104(g) allotments of funds by International Cooperation Administration*

| Country | Apr. 1, 1959 through Sept. 30, 1959 | Cumulative through Sept. 30, 1959 | Description of programs |
|---|---|---|---|
| | *Million dollar equivalent* | *Million dollar equivalent* | |
| Argentina | | 18.2 | Operation Beef, Government program to increase beef production, 14.3; aid to universities, 3.4; contributions to National Committee of Atomic Energy, 0.24; bilateral and multilateral scholarship program, 0.3. |

Mr. WHITTEN. Unless there are further questions you might go ahead, Mr. Grant.

CONSTRUCTION OF FACILITIES

Mr. GRANT. The next item is an appropriation of $900,000 for the construction of facilities. This provides for entomology research facilities which are now located at Orlando, Fla. As you recall, the committee last year approved a transfer of these facilities to the Department of Agriculture from the Department of Defense, but in view of the high value of that land for commercial development the Department was requested to study the situation and make a recommendation. We are now proposing the relocation of this laboratory at Gainesville, Fla. on the University of Florida campus, and propose that the property at Orlando be sold and the funds deposited into the Treasury.

Mr. WHITTEN. Would the land grant college at Gainesville provide the land necessary?

Mr. GRANT. It is contemplated that they will provide the land, yes sir. It does require some further clearance in the State.

SOIL AND WATER LABORATORIES

Mr. WHITTEN. What is the average amount that we have provided for the soil and water laboratories? Is that about $550,000?

Mr. GRANT. $550,000 was the average amount; yes sir. The, next item is an increase of $1 million for payments to State experiment stations.

## EXTENSION SERVICE

RURAL DEVELOPMENT PROGRAM

Under the Extension Service there is an increase of $3,289,045. The major item is for payment to State extension services, $2,865,000, in connection with the rural development program.

Mr. WHITTEN. Is that amount recommended for general use throughout the Nation or will they ask for that on a limited number of counties?

Mr. GRANT. This will be paid out to the States under the formula in the usual manner. It is expected that the States will use it primarily for strengthening rural development work with low-income farmers throughout each State.

Mr. WHITTEN. The reason I asked that question is because it is my recollection that we have something like 200 counties under the rural development program. The expense per county is so large that I believe the Department has taken the view that it is really to be allocated to experimental counties and what they learn there will be of general benefit to a tremendous number of counties. If we try to get money to put the same thing into so many places it would be beyond the realm of possibility.

Mr. GRANT. This would be for broadening the scope of the program substantially throughout each of the States beyond the existing program.

## SOIL CONSERVATION SERVICE

### WATERSHED PROTECTION AND FLOOD CONTROL

The next significant major item is Soil Conservation Service, watershed protection, where an increase of $5 million is proposed. This is for making an estimated 32 new starts in the fiscal year 1961. The budget estimate proposes a reduction of $1,400,000 in the planning activity to bring the planning work more nearly in line with the rate of construction which we will be able to provide. The estimate for flood prevention is $15 million, a reduction of $3 million below the 1960 appropriation.

Mr. WHITTEN. It strikes me as being shortsighted that in a period when the President has given quite a large number of new starts in reclamation and flood control, we find the Department of Agriculture scaled back in construction and planning. I would like to have you show in the record what this year's budget provides in the way of planning and in the way of construction, and new starts in both reclamation and rivers and harbors and flood control, as against last year's budget. On my motion the Congress restored some of the increase. Will you also supply what was requested by the Soil Conservation Service and by the Department in planning in these two items, watershed protection and flood control?

(The requested information follows:)

*1960 and 1961 budget estimates of appropriations for Corps of Engineers (rivers and harbors and flood control), Bureau of Reclamation, and Soil Conservation Service*

| | 1960 budget estimates (January 1959) | 1961 budget estimates (January 1960) |
|---|---|---|
| CORPS OF ENGINEERS—RIVERS AND HARBORS AND FLOOD CONTROL | | |
| Current appropriations: | | |
| General investigations | $9,000,000 | $9,500,000 |
| Construction, general | 660,000,000 | 718,424,000 |
| Operation and maintenance, general | 113,500,000 | 125,000,000 |
| General expenses | 12,640,000 | 12,120,000 |
| Flood control, Mississippi River and tributaries | 68,000,000 | 69,500,000 |
| U.S. section, St. Lawrence River joint project | 40,000 | 30,000 |
| International navigation congresses | | 180,000 |
| Permanent appropriations: | | |
| Payment to States, Flood Control Act of 1954, Army | 1,500,000 | 1,500,000 |
| Rivers and harbors and flood control, Army special expense funds: | | |
| Hydraulic mining in California, debris fund | 18,000 | 18,000 |
| Maintenance and operation of dams and other improvements of navigable waters | 150,000 | 150,000 |
| Total, Corps of Engineers, rivers and harbors and flood control | 864,848,000 | 936,422,000 |
| BUREAU OF RECLAMATION | | |
| Current appropriations: | | |
| General investigations | 5,000,000 | 4,650,000 |
| General investigations (special foreign currency program) | | 4,957,000 |
| Construction and rehabilitation | 135,410,000 | 173,950,000 |
| Operation and maintenance | 29,131,000 | 31,900,000 |
| General administrative expenses | 4,400,000 | 4,320,000 |
| Loan program | 220,000 | 18,437,000 |
| Disposal of Coulee Dam community | | 15,000 |
| Boulder City municipal fund | | 150,000 |
| Upper Colorado River Basin fund | 77,035,000 | 71,600,000 |
| Permanent appropriations: | | |
| Disposal of Coulee Dam community | 97,000 | 16,000 |
| Boulder City municipal fund | 270,000 | 8,000 |
| Colorado River Dam fund, Boulder Canyon project: | | |
| Payment of interest on advances from the Treasury | 3,200,000 | 3,200,000 |
| Payment to States of Arizona and Nevada | 600,000 | 600,000 |
| Operation, maintenance, and replacement of project works, North Platte project | 4,000 | 10,000 |
| Payments to Farmers' Irrigation District (North Platte project, Nebraska-Wyoming) | 8,000 | 8,000 |
| Refunds and returns | 125,000 | 92,000 |
| Total, Bureau of Reclamation | 255,500,000 | 313,913,000 |
| SOIL CONSERVATION SERVICE | | |
| Current appropriations: | | |
| Flood prevention (works of improvement) | 15,000,000 | 15,000,000 |
| Watershed protection: | | |
| 1. Investigations and planning | 4,300,000 | 3,500,000 |
| 2. Installation of works of improvement | 13,700,000 | 22,150,000 |
| 3. Loans and related expenses | 1,000,000 | 1,000,000 |
| 4. Surveys and investigations of water resources | 1,000,000 | 1,100,000 |
| Total, watershed protection | 20,000,000 | 27,750,000 |
| NEW STARTS | | |
| Corps of Engineers (those costing $400,000 each or more) | | [1] 31 |
| Bureau of Reclamation: | | |
| Direct construction | | 6 |
| Loans for construction | | 5 |
| Soil Conservation Service, watershed protection | [2] | 32 |

[1] In addition, budget includes funds for an unspecified number of new starts on projects costing less than $400,000 each.

[2] Budget contemplated 40 starts in 1960 which had originally been budgeted for 1959. No funds were requested for additional new starts in 1960.

The following statement reflects the amounts requested by the Soil Conservation Service and by the Department, and the estimates included in the budget or the fiscal year 1961 for watershed protection and flood prevention:

| | Requested by SCS | Requested by Department | Budget estimates, 1961 |
|---|---|---|---|
| Watershed protection | $39,000,000 | $27,750,000 | $27,750,000 |
| Flood prevention | 18,000,000 | 15,000,000 | 15,000,000 |

## Agricultural Conservation Program

Mr. Grant. The next major change in the 1961 budget is for the agricultural conservation program, an increase of $1,100,000. This proposes a total appropriation of $242,600,000 and will provide for the full authorization for the 1960 program as included in last year's Appropriation Act. There will be $7,400,000 in estimated underearnings on the 1959 program that can be applied to this item in 1961. The advance authorization for the 1961 program is projected at $100 million.

## Agricultural Marketing Service

For the Agricultural Marketing Service there is under "Marketing research and agricultural estimates" an increase of $1,056,000. This consists of roughly $500,000 to initiate improvements in the crop and livestock reporting service and about $500,000 for marketing research. For marketing services there is an increase of $307,500 which includes an increase of $216,450 for strengthening the Packers and Stockyards Act and $50,450 for the Federal Seed Act.

### ESTIMATES FOR INCREASES IN PERSONNEL

Mr. Whitten. Pursuant to an agreement in a meeting of many of the senior members of the Appropriations Committee, I understand that every effort will be made to prevent additional Federal employees from being hired, and perhaps some agreement was made that if any subcommittee failed to take that action they would assist in bringing that about. How many new employees are being requested for the Department under your various proposals?

Mr. Grant. This budget involves increases of 952 average annual positions for the Department of Agriculture.

Mr. Whitten. You will put that table into the record later on?

Mr. Grant. Yes. Of the 952 employees, 762 apply to the Forest Service which is before a different subcommittee and therefore the increase of funds before this committee would be 190.

Mr. Whitten. I should have asked you this at the time it was mentioned, but this rural development program, does that provide for additional employees?

Mr. Grant. The $2,865,000 would be paid to States. The item of $137,400 is for the Federal Extension Service and a part of it is for work in connection with the rural development program at the Federal level, but at the State level the biggest part of the $2,865,000 would be used for personnel.

Mr. Roberts. There wouldn't be more than three or four in Washington for the Federal Extension Service.

Mr. GRANT. Of the $137,400 for the Federal Extension Service, $37,000 is for the rural development program.

POULTRY INSPECTION

In connection with the item for marketing services the estimate for poultry inspection is being continued at the present level. Under the law the exemption which the Department has granted poultry processing plants had been exempt from continuous inspection. They will make a spot check from time to time. The estimate contemplates that this legislation will be extended so as to enable the Department to continue to exempt from continuous inspection the work in the poultry processing plants.

Mr. WHITTEN. I might ask you something here off the record.

(Discussion off the record.)

SCHOOL LUNCH PROGRAM

Mr. GRANT. Still under the Agricultural Marketing Service, the appropriation recommended for the national school lunch program of $110 million is the same as the 1960 appropriation. The budget also proposes the transfer of $40 million from section 32 funds to the school lunch program which is a little more than $3 million below the transfer provided in 1960.

Mr. ANDERSEN. Was any of this transferred to the Department of Health, Education, and Welfare?

Mr. GRANT. No, it is in the Department of Agriculture. There has been no change in the responsibility for carrying out the school lunch program.

FOREIGN AGRICULTURAL SERVICE

In the Foreign Agricultural Service there is an increase of $1,100,000. This involves a nominal increase in regular Foreign Agricultural Service activities, including $110,000 for strengthening the attache service in Europe and Africa. However, the biggest portion is for expenses in connection with the attaché program which have heretofore been paid from foreign currencies. You will recall that in the last 2 years, with the approval of this committee, a considerable amount of foreign currencies have been used for the agricultural attaché work. This change in procedure for control of foreign currencies involves an appropriation of dollars to the Service which it will use to procure whatever currencies may be needed in carrying out the agricultural attaché work.

Mr. WHITTEN. Does this figure represent the foreign currencies that have been used, the value as figured in U.S. dollars or is this a substitute of dollars equivalent to foreign currency?

Mr. GRANT. This is the dollar equivalent of the foreign currencies heretofore used.

Mr. WHITTEN. It is not an increase in the total amount available?

Mr. GRANT. That is correct insofar as the $950,000 is concerned.

Mr. WHITTEN. Is that $950,000 a part of the larger amount mentioned earlier in the bill for the purchase of the currencies or is this a separate item?

Mr. GRANT. This is a separate item since it is a part of the regular appropriation to the Service for salaries and expenses.

Mr. WHITTEN. Why would we appropriate this in cash in dollars to the Foreign Agricultural Service instead of moving it over or adding it to the general purchase?

Mr. GRANT. Doing it this way places all of the costs for the attaché service in one item. The next item in the table, called the special foreign currency program, estimated at $14,621,800, relates only to market development work. If the $950,000 were included in the special foreign currency program item, part of the attaché cost would be paid from one item and part from another, which would be undesirable. Under the budget proposal all of the attaché costs are in one place; namely, the regular salaries and expenses appropriation. I might mention that a substantial part of the $950,000 is for payment to the State Department for administrative support costs—not all of it, but more than half of it.

## COMMODITY STABILIZATION SERVICE

### ACREAGE ALLOTMENTS AND MARKETING QUOTAS

The next item is under the Commodity Stabilization Service, "Acreage allotments and marketing quotas," which reflects an increase of $1 million. This increase is for performance checking on cotton. As you know, the choice A and B plan expires with the 1960 crop. It is expected that there will be a larger acreage under the existing law which will have to be checked in the fiscal year 1961. In the fiscal year 1960, we have a supplemental estimate pending before the Congress now for $1,666,800 for performance checking on the 1960 crop. If that supplemental is approved the estimate for 1961 will actually represent a decrease of some $667,000.

### SUGAR ACT PROGRAM

The next item is a $3 million increase in the Sugar Act program and is principally for mandatory payments to domestic producers in the continental United States. With sugar production increasing, this increase is necessary in order to make the payments required by law. Now, as far as the conservation reserve program is——

Mr. ROBERTS. Just one observation on this sugar program, Mr. Chairman. It is up for extension of the legislative authorization. No action has been taken yet in either House. Whether it is extended or not this appropriation is necessary as it will apply to the last crop under the existing agreement.

## CONSERVATION RESERVE PROGRAM

The next item is an estimate of $361,783,000 for the conservation reserve program. An increase of $26,783,000 is needed to cover payments estimated to be made in 1961 for contracts signed during the 1960 and prior year programs.

Mr. WHITTEN. The General Accounting Office says that 23 percent of this land was never in production or had no history of production. Such lands are to cost us $270 million before we get through if we carry out that contract. Does that take into consideration any adjustment on these contracts where no production was removed, or is this based on all existing contracts?

Mr. GRANT. This is based on all existing contracts. The 1961 budget proposes an extension of the program. If that extension is approved by the Congress a supplemental estimate in the 1961 fiscal year will be needed to cover practice payments and additional administrative expenses of the first year of the extension.

Mr. ANDERSEN. I might say that this is potentially a very good program, gentlemen. It has never really had a fair chance to work but, as I said, it has a great potential if properly advanced.

Mr. MICHEL. The figure of $335 million escapes me. Last year when the budget came up to the committee what was the figure? What did you originally come up with? Wasn't that more?

Mr. GRANT. I believe it was more. It was reduced because some of the practice payments did not fall due in 1959 as we had anticipated. There was a carryover of funds from 1959 into 1960 which made it possible to reduce the estimate.

Mr. ANDERSEN. $360,370,000 was the original figure.

Mr. MICHEL. And they ended up with $335 million. That was predicated on 28 million acres in reserve.

Mr. GRANT. It contemplated about 23 million acres through the 1959 crop year and 28 million acres through the 1960 crop year.

Mr. MICHEL. So now you come back with roughly about the same figure but I think—the Secretary or someone in the Department is still thinking in terms of increasing, the reserve by about 8 million or 9 million acres.

Mr. GRANT. For the current calendar year there is an increase of over 5 million acres which brings it up to 28 million acres. The amount I believe you are talking about is in addition to that. It would require additional legislation because the conservation reserve program expires on December 31, 1960.

Mr. MICHEL. If the administration's fondest views were realized you would still have to come in for a supplemental, wouldn't you?

Mr. GRANT. Yes, sir.

Mr. ROBERTS. If it is extended, yes.

Mr. WHITTEN. If we appropriated it in the absence of an authorization, it would go out on a point of order.

Mr. ROBERTS. It will require a supplemental next year.

## FARMERS HOME ADMINISTRATION

Mr. GRANT. The next item of significance here is salaries and expenses for the Farmers Home Administration, an increase of $496,300 and that is for strengthening the county office work, including expenses in connection with the reclassification of county office clerks.

### REDUCTION IN FARM OPERATING LOANS

Mr. ANDERSEN. Mr. Grant if you will permit at this point, how can you justify an increase in that particular item when you are cutting down or you propose cutting down the farm operating loans, the subsidy loans by $26 million?

Mr. GRANT. The reduction in farm operating loans next year would not have any material effect on the administrative expenses of the

county offices because of the existing caseload which would have to be handled. The number of county offices has been reduced to the point where it is difficult for farmers to get to them very easily and there is a need for a few more offices, but as I mentioned a good portion of this is to provide for higher salaries for county office clerks where the Civil Service Commission has issued new standards requiring the Department to increase the salaries at the beginning of the next fiscal year

Mr. ANDERSEN. The salary and expense item is $31,467,650.

Mr. GRANT. Yes, sir.

Mr. ANDERSEN. For 1961 fiscal year. That is a lot of money and it is hard for me to see why that money cannot be used to provide farmers better access in many cases to these various offices scattered throughout the Nation. I do think we have seen too much consolidation of some of these offices for the good of the program. I protested some of them.

Mr. GRANT. That is one of the things that was done to make them more available to the farmer.

Mr. ANDERSEN. I will have to be convinced later on in the hearing that this item for salaries and expenses is not too big in comparison to the service rendered to the farmers, especially in view of the fact that they will cut down the loan authority by $26 million and also another $4 million on the farmownership loan. The two do not seem to be consistent. However, we should provide funds as needed to keep salaries of present employees in line with civil service standards. I may want to look into this very thoroughly later on.

## FOREST SERVICE

Mr. GRANT. The next item is the Forest Service, "Forest protection and utilization," an increase of $10,567,000. I recognize that this estimate is before the Interior and Related Agencies Subcommittee, but I wanted to mention it briefly as a matter of your general interest. The increase is primarily in connection with timber sales, recreation, fire protection, research, roads, and also includes an item of $1 million for the acquisition of lands in the Superior National Forest. That covers the items for regular activities.

Mr. ANDERSEN. Off the record.

(Discussion off the record.)

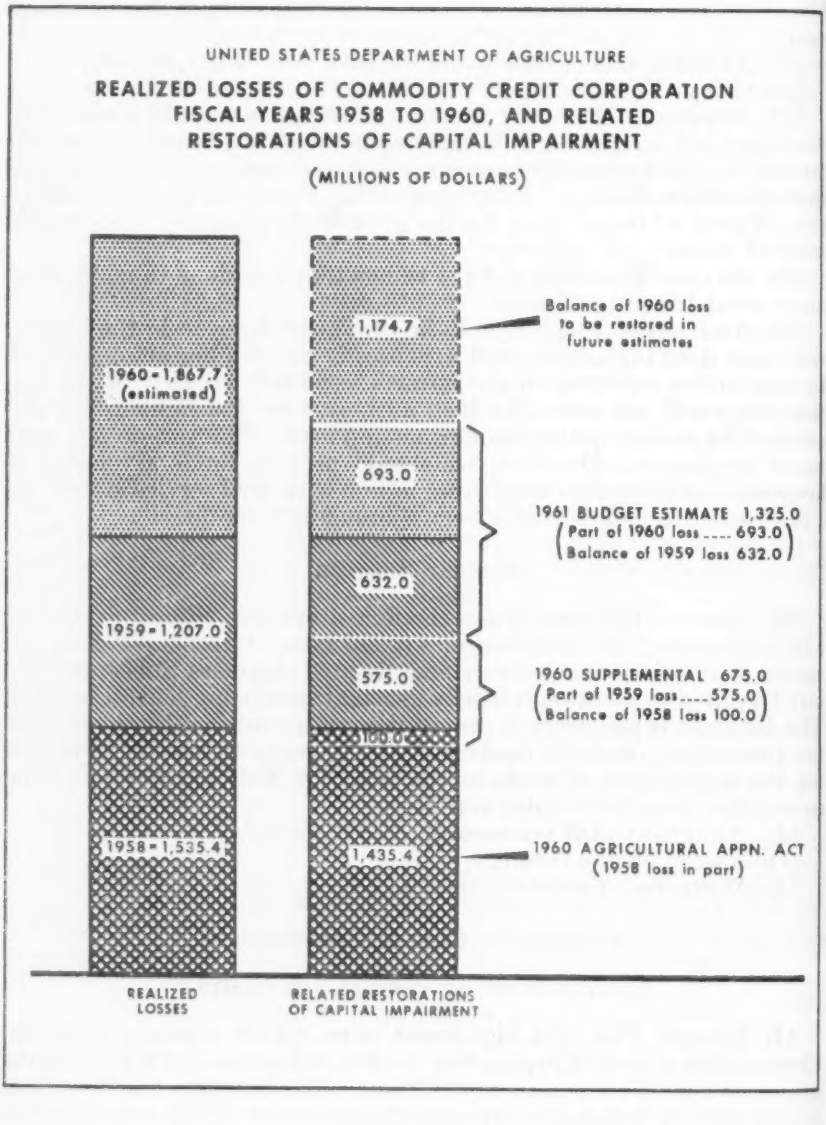
Mr. WHITTEN. You may proceed.

## COMMODITY CREDIT CORPORATION

### RESTORATION OF CAPITAL IMPAIRMENT

Mr. GRANT. The next significant item, which appears under the Commodity Credit Corporation, is for restoration of CCC capital impairment. This is a complex item. We have prepared a chart which may be helpful to you and the members of the committee in understanding this situation.

(The chart referred to follows:)


UNITED STATES DEPARTMENT OF AGRICULTURE
REALIZED LOSSES OF COMMODITY CREDIT CORPORATION
FISCAL YEARS 1958 TO 1960, AND RELATED
RESTORATIONS OF CAPITAL IMPAIRMENT
(MILLIONS OF DOLLARS)
1960 - 1,867.7 (estimated)
1959 - 1,207.0
1958 - 1,535.4
1,174.7
693.0
632.0
575.0
100.0
1,435.4
Balance of 1960 loss to be restored in future estimates
1961 BUDGET ESTIMATE 1,325.0
Part of 1960 loss .... 693.0
Balance of 1959 loss 632.0
1960 SUPPLEMENTAL 675.0
Part of 1959 loss .... 575.0
Balance of 1958 loss 100.0
1960 AGRICULTURAL APPN. ACT
(1958 loss in part)
REALIZED LOSSES
RELATED RESTORATIONS OF CAPITAL IMPAIRMENT

Mr. GRANT. The bar on the left reflects the actual realized losses of the Commodity Credit Corporation in the fiscal years 1958 and 1959 and estimated for 1960. The bar on the right indicates the appropriations made to date and proposed to restore the Corporation's capital impairment. For the 1958 losses of $1,535 million the Appropriation Act for 1960 included $1,435.4 million. A supplemental estimate has been submitted to the Congress and is now under consideration in the amount of $675 million representing the remaining $100 million of the 1958 losses and $575 million of the 1959 losses which would ordinarily be restored in the fiscal year 1961 appropriation. But because the use of the Corporation's borrowing authority has reached a point where, by June 30, 1960, there will be a balance of only $441 million, the supplemental estimate has been proposed in order to assure that the Corporation will have sufficient funds to continue its operations throughout the year.

ESTIMATES, 1961, FOR LOSSES

The 1961 budget estimate of $1,325 million also represents our best estimate of the Corporation's needs in that year. It consists of the balance of the 1959 losses of $632 million and an advance restoration of $697 million of the 1960 actual losses.

Mr. WHITTEN. When you refer to losses does this include all programs for which the Commodity Credit Corporation was used as the means to finance or is this limited to price support programs?

Mr. GRANT. This is limited to the price support, supply, and related programs of the Corporation. It does not include title I of Public Law 480 and the other special activities.

Mr. WHITTEN. This business of anticipating losses and appropriating in advance is a little new to me.

Mr. GRANT. The 1961 estimate includes $632 million representing the remainder of the actual losses as of June 30, 1959. It also includes $693 million representing a partial restoration of the losses for 1960, which will be determined by the appraisal as of June 30, 1960. The act of March 8, 1938, requires an appraisal by the Secretary of the Treasury of the assets and liabilities of the Corporation as of June 30 each year. This act also authorizes the appropriation of funds required to restore any capital impairment disclosed by such appraisal. At the time the 1961 appropriation is provided the appraisal will not actually have been made. But the losses will have been incurred. As a matter of fact the actual losses on the books of the Corporation through December 31, 1959, were $770 million.

The appropriation in recent years has been made on the basis of actual realized losses rather than taking into consideration valuation reserves.

Mr. WHITTEN. In view of that act where is your authority now to follow this course?

Mr. GRANT. This covers a portion of the 1960 losses.

Mr. WHITTEN. We are not arguing as to that particular part. That is actual losses. That part which you request under your appropriation is in the face of the 1954 statute and is only paper losses. Will it continue to be paper losses?

Mr. GRANT. No, the actual realized losses through December 31, 1959, the first half of the fiscal year 1960 are $770 million, which is in

excess of the $693 million proposed here. So, the losses have actually occurred. I think the difference is this: The law requires the Secretary of the Treasury to make an appraisal as of June 30 each year. It also authorizes an appropriation to restore any capital impairment disclosed by the appraisal. The appraisal as of June 30, 1960, will not have been made by the time the Congress acts on this bill. In that respect the action proposed is not exactly in conformity with the wording of the law. However, our General Counsel informs us that he believes that the appropriation is authorized. The only feasible alternative to the proposal in the budget is to request an increase in the borrowing authority of the Corporation, but we feel that this advance restoration is the preferable course to follow.

Mr. WHITTEN. There is still another course, you know, and our committee tried to point it out, that the Corporation can get the money from the sale of commodities. You do have that source of funds, do you not?

Mr. GRANT. That is correct. However, to the extent that they incur losses in connection with those sales, then the capital is further impaired.

Mr. WHITTEN. That is right, and to the extent that they get cash from those sales, they have cash with which to discharge that responsibility.

Mr. GRANT. That is exactly correct.

Mr. WHITTEN. So, between what you said and what I said, the story is complete?

Mr. GRANT. That is right.

### AUDITING OF THE CORPORATION

Mr. ANDERSEN. Mr. Grant, what is the latest date that we have had a thorough audit of the operations of the Commodity Credit Corporation?

Mr. GRANT. The General Accounting Office audits the Commodity Credit Corporation continually.

Mr. ANDERSEN. I understand that, but my question goes beyond that to the actual operations. Does the General Accounting Office go in and check into the sales and holdings of certain specific quantities of grain and see that there is no skulduggery along the line an any way?

Mr. GRANT. They do.

Mr. ANDERSEN. They make a thorough checkup?

Mr. GRANT. Yes, and in addition the Commodity Stabilization Service has its own audit, which goes into those various matters also.

Mr. ANDERSEN. It is only human for people entrusted with certain operations in which huge sums of money are concerned to become, perhaps, a little lax unless they know that their operations are subject to very strict audit, and I would not like to find at any time that because of the lack of supervision or request from this subcommittee that perhaps we have not had the sort of audits that we should have of the entire operation from top to bottom, but you assure me that you are satisfied with the audit that we do have.

Mr. GRANT. So far as I can see, Mr. Andersen, it is a complete audit.

Mr. ANDERSEN. Do you agree with that, Mr. Roberts?

Mr. ROBERTS. Yes. I want to say one thing about it. The internal audit of the Commodity Stabilization Service is not just a

financial audit; it is an operations audit which includes not only the examination of a financial status of the corporation, but an appraisal of all its operations. Then the General Accounting Office comes in behind them and makes its own independent audit. The General Accounting Office audit, again, is a comprehensive operational audit. It includes not only an audit of the books but an appraisal of the operations themselves. So, I feel quite confident that the audit is adequate. As a matter of fact, we pay to the General Accounting Office a rather substantial sum of money every year for the audit, and they have a large staff of people who live with us day in and day out, and who have space in the Department of Agriculture, just as though they were our own people.

Mr. ANDERSEN. I have had no intimation of any kind that there was anything wrong in the least degree, and I am glad to be assured that proper audits of that huge operation are made and that there is no question but what everything is 100 percent.

Mr. ROBERTS. Well, we have no reason to believe that it isn't, based on the kind of audit that is being made.

Mr. ANDERSEN. Thank you. That is all I wanted to know.

### LIMITATION ON ADMINISTRATIVE EXPENSES, COMMODITY CREDIT CORPORATION

Mr. GRANT. The next item is the Commodity Credit Corporation administrative expenses limitation which reflects an increase of $5.3 million. This is based in part on the need to provide for an increase in the estimated price support workload. It also includes an increase of $1,066,000 to finance administrative costs relating to foreign donations under section 416, Agricultural Act of 1949, involving primarily audit and end-use checks of commodities going abroad. The determination has been made that Commodity Credit Corporation funds are the only ones available for this purpose, and that additional audit and end-use checks should be made.

### REIMBURSEMENT TO CCC FOR COST OF SPECIAL ACTIVITIES

The item for reimbursement to CCC for costs of special activities, for which the total estimate is $1,468,742,000, shows an increase of $200,644,500 above 1960. This provides for the estimated 1960 costs of title I, Public Law 480, the International Wheat Agreement, the emergency famine relief to friendly peoples, the transfer of bartered materials to the supplemental stockpile, and a few other relatively minor items.

### AGRICULTURAL PROGRAMS HAVING MULTIPLE BENEFITS

Mr. ANDERSEN. What percentage would you say would be a fair percentage of the $1.468 billion to charge against the agricultural budget?

Mr. GRANT. I don't believe we have ever tried to evaluate it in terms of a percentage because it is difficult to say how much of that is for the benefit of the farmers or for agriculture, and how much benefits other segments of the economy. We have prepared, for use in answering specific questions of this nature, a tabulation of the budget

expenditures for the Department which attempts to segregate those which have multiple benefits from those which are predominantly for the benefit of the farmers.

Mr. ANDERSEN. I do not contend that the entire amount should be chargeable elsewhere. I do feel that Agriculture is getting some benefit out of this $1.468 billion, whatever the figure is.

Mr. GRANT. This table, I think, goes part way toward answering your question in terms of indicating those activities which benefit the nonagricultural segments of the economy.

Mr. ANDERSEN. Part of which at least should go elsewhere in all fairness.

Mr. GRANT. Yes, sir.

Mr. ANDERSEN. But I can see, as you pointed out, that it is practically impossible to figure just how much should go here and how much there.

Mr. GRANT. That is right.

Mr. WHITTEN. If I may say, in that connection, Mr. Andersen, even when you get to this in the farm area, the Comptroller General held that holding cotton off the world market is in violation of the law. Our sales were something less than 3 million bales, and this year it will be up to 6.5 million bales, and the storage, when held off markets, to my mind, is not a proper charge against the farmers. The point I have been trying to make in the legislation which Mr. Marshall and I introduced was, that if we could find some means to enable the farmer to get a fair net income from what is needed, and through that means we might not only reduce the overall cost of the price-support program, we would also save the farmer the cost of producing that overamount.

Mr. ANDERSEN. Mr. Chairman, could we have this table put in the record at this point, in connection with my discussion?

Mr. WHITTEN. We will be glad to have the table inserted.

(The table referred to follows:)

*Estimated budget expenditures (based on 1961 budget)*

[Millions of dollars]

| | Fiscal year 1960 | Fiscal year 1961 |
|---|---|---|
| Programs having multiple benefits and not directly chargeable to the farmer: | | |
| Programs having foreign relations and defense aspects, including Public Law 480 | $1,496 | $1,508 |
| Food distribution programs, including commodity purchases under the program for removal of surplus agricultural commodities, school lunch, and school milk | 342 | 342 |
| Investment in REA and FHA loans, which are subject to repayment | 576 | 548 |
| Long-range programs for the improvement of agricultural resources, including research, meat inspection, disease and pest control, education, market development and services, protection of soil and water resources, and forest and public land management | 676 | 733 |
| Total | 3,084 | 3,131 |
| Programs predominantly for the benefit of the farmer: | | |
| Agricultural conservation program | 244 | 233 |
| Soil bank programs: | | |
| Acreage reserve program | 5 | |
| Conservation reserve program | 365 | 394 |
| CCC price support, supply, and related programs, and National Wool Act and acreage allotments and marketing quotas | 1,840 | 2,295 |
| Sugar Act program | 74 | 78 |
| Wool Act program | 94 | 70 |
| Total | 2,622 | 3,070 |
| Grand total | 5,706 | 6,201 |

Mr. WHITTEN. When I looked at that part which you stated was predominantly for the benefit of the farmers, it occurred to me that we should have in there the cost of storage and the cost of handling and the cost of transportation and the cost of various other things which are part of this. Your title is correct, but it doesn't show what part goes to the middlemen and not to the farmer. We had it last year.

Mr. ANDERSEN. I shall revise my request to have that done at the present time.

Mr. GRANT. I know what you have reference to.

(The following table, which provides an analysis on the basis discussed above, was submitted later:)

*Estimated budget expenditures for programs predominantly for the benefit of farmers, fiscal years 1960 and 1961*

[Millions of dollars]

| Program | 1960 | 1961 |
|---|---|---|
| Agricultural conservation program: | | |
| Cost-sharing payments to farmers | $216 | $205 |
| Operating expenses | 28 | 28 |
| Total, agricultural conservation program | 244 | 233 |
| Soil bank programs: | | |
| Acreage reserve program (payments to farmers) | 5 | |
| Conservation reserve program: | | |
| Rental and cost-sharing payments to farmers | 345 | 380 |
| Operating expenses | 20 | 14 |
| Total, conservation reserve program | 365 | 394 |
| CCC price support, supply, and related programs, National Wool Act and acreage allotments and marketing quotas: | | |
| CCC price support, supply, and related programs: | | |
| Loans made (net to loan repayments) | 1,239 | 1,013 |
| Commodity purchases | 1,974 | 1,927 |
| Proceeds from sales of commodities | −2,804 | −2,476 |
| Other program expense | 103 | 379 |
| Storage, handling, and transportation | 774 | 879 |
| Interest and operating expenses | 513 | 533 |
| Total, CCC price support, supply, and related programs | 1,799 | 2,255 |
| National Wood Act: | | |
| Incentive payments to producers | 86 | 62 |
| Operating and interest expenses | 8 | 8 |
| Total, National Wool Act | 94 | 70 |
| Acreage allotments and marketing quotas (operating expenses) | 41 | 40 |
| Total, CCC price support, supply, and related programs, National Wool Act and acreage allotments and marketing quotas | 1,934 | 2,365 |
| Sugar Act program: | | |
| Payments to producers | 72 | 76 |
| Operating expenses | 2 | 2 |
| Total, Sugar Act program | 74 | 78 |
| Total | 2,622 | 3,070 |

Mr. MICHEL. Mr. Chairman, will you yield for one question?

Mr. WHITTEN. Mr. Michel.

## ADMINISTRATIVE EXPENSES OF THE CCC

Mr. MICHEL. We have a figure of nearly $1.5 billion for total reimbursement of the Commodity Credit Corporation. Have you made any estimates of the administrative cost of the Commodity Credit Corporation?

Mr. GRANT. We could furnish such a figure, Mr. Michel. I do not have it with me. The administrative expense limitation for the Corporation this year, 1960, will be approximately $43 million. By far the greater portion of that will be in connection with the regular Corporation activities. There will be part of it which will be applicable to title I of Public Law 480, the wheat agreement, and the other special activities which we could segregate on an estimated basis.

Mr. MICHEL. We could?

Mr. GRANT. Yes.

Mr. MICHEL. Well, I would be interested in those figures as to whether there has been much of a fluctuation the past years, how it would stack up with private industry, with respect to the overall operation of the Corporation. That is all, Mr. Chairman.

(The information requested follows:)

ADMINISTRATIVE EXPENSES APPLICABLE TO REIMBURSEMENT TO CCC FOR COSTS OF SPECIAL ACTIVITIES, FISCAL YEAR 1960

The appropriation request to reimburse CCC for costs of special activities during the fiscal year 1960 contains five items relating to the disposal of surplus agricultural commodities and one item relating to classing cotton and grading tobacco. The latter item, amounting to $715,000, should be considered entirely as an expense of the Agricultural Marketing Service.

Among the five surplus disposal programs, only one, the International Wheat Agreement program, includes specific provision for administrative expenses. For 1960, these are estimated at $200,000 and are not charged to CCC administrative expense limitation. For the remaining four surplus disposal programs, no funds are provided specifically for administrative expenses.

Administration of these programs is financed from the administrative expense limitation of the Commodity Credit Corporation. The greater part of the work generated by these four disposal programs is identical in nature with the routine clerical work associated with other disposals from price support inventories including commercial sales, donations under section 416 of the Agricultural Act of 1949, as amended, and payment-in-kind transactions. The work includes selecting warehouse receipts to be released, ordering the commodities moved from storage to point of sale, audit and payment of freight bills, settling with warehousemen, invoicing, accounting and claims activities. In these operations, employees are not usually assigned to a specific disposal program, but perform the necessary operations for all. Consequently, there are no accounting or other records available from which to furnish the requested information on the following four programs:

1. Emergency famine relief to friendly people.
2. Sales of surplus agricultural commodities for foreign currencies.
3. Grain for migratory waterfowl feed.
4. Transfer of bartered materials to supplemental stockpile.

For these programs, however, the following information is available:

*Sale of surplus agricultural commodities for foreign currencies*

A survey was recently conducted to ascertain personnel which could be identified as performing functions in connection with this program. This survey indicated that there were 159 employees at the Washington level averaging about one-third of their time at an annual salary cost of $357,000. The functions of this group consist of—

1. Determining and recommending by type, class, or variety the quantity of all price-supported commodities considered to be in surplus and available for title I, Public Law 480 export.
2. Coordinating with FAS, surplus agricultural commodity availability under other authorities of Public Law 480; i.e., barter, title II, the domestic and foreign donation programs under title III, and exports under the ICA-administered section 402, Public Law 665 program.
3. Review and approval of terms and provisions of title I, Public Law 480 purchase authorizations prior to issuance.
4. Administration of the 50–50 U.S.-flag shipping provision of Public Law 664, Cargo Preference Act, as it relates to all title I exports.

5. Review of agricultural commodity prices charged foreign importers by U.S. exporters under title I. Claims action is instituted for noncompliance with terms of purchase authorizations and/or regulations.

6. Review, control and recordation of financial transactions peculiar to title I, Public Law 480 operations.

In the 7 CSS commodity offices it was estimated that an average of about 13 employees at an annual salary of $65,000 could be identified with this program. The functions of this group include accounting for payments made to banks, making payments to suppliers, banks and foreign countries, and accounting for letters of commitment. These costs are not included in the reimbursement to CCC.

As described above it is estimated that $422,000 of the CCC administrative expense limitation can be attributed to title I of Public Law 480 activities.

*Transfer of bartered materials to supplemental stockpile*

The barter of agricultural commodities for strategic materials transferred to the national stockpile is accomplished primarily by the Barter and Stockpiling Division of the Commodity Stabilization Service. This Division has 53 employees and an annual budget of $445,000. These costs are financed from the CCC administrative expense limitation and are not included in the reimbursement to CCC for materials transferred to the supplemental stockpile. Administrative expenses for services rendered CCC by the General Services Administration in connection with receiving and storing strategic materials until transferred to the supplemental stockpile amount to about $550,000 annually. These costs are considered in computing the reimbursement to CCC.

On this basis it is estimated that a total of $995,000 may be identified as administrative expense relating to this activity.

*Emergency famine relief to friendly peoples and grain for migratory waterfowl feed*

All commodities donated under these programs are from CCC inventories and there are no specific administrative cost areas of any significant size which can be readily identified as peculiar to these programs.

## Rural Electrification Administration

### LOANS

Mr. Grant. The next item is rural electrification loans for which the estimate is $110 million. However, the program will be at a level of $220 million in 1961, because of the carryover of unobligated balances from 1960. In connection with the rural telephone loan program, the estimate provides a loan program of $81 million, consisting of $80 million in new loan authorization, and $1 million in the rescission of prior year loans.

Mr. Andersen. I see you came out with a total reduction of $50 million for the two brackets—a nice, round figure which immediately raises some questions in my mind.

Mr. Grant. In the case of the electrification program, the 1960 funds are in excess of the needs, because applications for electrification loans have not increased to the extent originally anticipated. Because the unused funds carried over, it is possible to reduce the borrowing authority for next year, and still meet the estimate of the foreseeable needs for electrification loans.

## Farmers Home Administration

### LOANS

In the case of the Farmers Home Administration, the estimate for new authorization is $177 million, a reduction of $29 million, consisting of a decrease of $4 million in farm ownership loans, a decrease of $26 million in farm operating loans, and an increase of $1 million in soil and water conservation loans. The estimate for the Farmers Home Administration new borrowing authorization and salaries and expenses is predicated on the estimated receipts which will be coming into the

Treasury in the fiscal year 1961 from repayments of Farmers Home Administration loans. I don't believe, Mr. Chairman, I need to discuss the permanent appropriations unless there are some questions. I believe this covers the major changes in appropriations and borrowing authorizations.

Mr. WHITTEN. I recall when we passed the housing bills from time to time they always place the responsibility for farm home loans with the Farmers Home Administration. It has been my observation that there has been very little implementation, comparatively, of home-building through this agency.

Now, if you pull your authorizations down, your receipts—if we had a complete failure some year, we would not have any at all. If they did not collect any receipts at all, due to adversity, you would not make any loans. Is that a good yardstick on which to base it? I don't think in the city housing field you have any such guide rules.

Mr. GRANT. Farm housing loans are not included within this loan authorization. That is a separate one. But I think your point goes to whether or not this is a good criterion. It is felt that it is a valid basis. Of course, it is not anticipated under current conditions that we will not be able to make any collections. The estimate will provide for financing Farmers Home Administration, roughly, in relationship to its estimated receipts.

Mr. WHITTEN. I have been disturbed with two or three things. The first is that the people in rural areas haven't the same availability to get loans for housing that you have in the city and other areas. In that area you had one group, and here you have Farmers Home Administration, or whatever the Congress might authorize by one means or another. They have been, in my opinion, kind of held down, even though the loans were sound.

I have been advised that last year they required some reasonable part of the income from the farmer, from agriculture, and this year they substituted a flat dollar amount, which had the effect of just scaling down loans tremendously. I think they have now waived that in the 200 rural development counties. I don't see how, under general laws and general regulations, that you can make loans available to persons in one county and not make them available in another county. I haven't asked the general counsel for an opinion. I don't believe it is good policy, even if authorized; but that is my understanding now, that the Farmers Home Administration in the 200 rural development counties has far more lax requirements to make loans than in other counties.

So it leaves the rural development counties in a rather favorable situation. Is that discussed at your level?

Mr. GRANT. I think this goes back to 1959 when, in connection with the recession, the loan requirements were relaxed considerably to make a greater contribution to additional building construction which would help the economy. As the recession ended, the restrictions were restored to the program and, as you say, in recent months—and I don't remember exactly when the change was made—the requirements were relaxed in certain areas, such as the low-income areas.

Outside of that, I am not informed on the basis for it.

Mr. WHITTEN. I don't mean to press you further about it, and I realize this will come up again when we have the other witnesses up here.

Mr. GRANT. I believe this covers the major items.

## GENERAL BUDGETARY TABLES

Mr. GRANT. We have prepared for the committee's use a series of tables covering appropriations aspects of the Department's finances. They are bound in a booklet form. We also have a table on average annual positions. I would like, with your approval, to offer them for the record.

Mr. WHITTEN. We shall be glad at this point to have them inserted in the record.

(The tables referred to follow:)

TABLE 1.—*Budget estimates, 1961, compared with appropriations and REA and FHA loan authorizations, 1960*

[NOTE.—Amounts for 1960 include all supplemental appropriations to date and are adjusted for comparability with the appropriation structure proposed in the 1961 Budget Estimates. Amounts in brackets are not included in totals.]

| Agency or item | Appropriations and loan authorizations, 1960 | Budget estimates, 1961 | Increase (+) or decrease (−) | | |
|---|---|---|---|---|---|
| | | | Health benefit costs on base for 1961 | Other | Total |
| Annual appropriations for regular activities: | | | | | |
| Agricultural Research Service: | | | | | |
| Salaries and expenses: | | | | | |
| Research | $67,721,590 | $68,981,700 | +$497,200 | +$762,910 | +$1,260,110 |
| Plant and animal disease and pest control | 49,800,600 | 48,775,600 | +306,600 | −1,331,600 | −1,025,000 |
| Meat inspection | 21,324,900 | 21,562,700 | +237,800 | | +237,800 |
| Salaries and expenses (special foreign currency program) | [1] 12,056,500 | 15,131,500 | | +3,075,000 | +3,075,000 |
| Construction of facilities | | 900,000 | | +900,000 | +900,000 |
| State experiment stations (principally payments to States) | 31,803,708 | 32,803,708 | | +1,000,000 | +1,000,000 |
| Total, Agricultural Research Service | [2] 182,707,298 | 188,155,208 | +1,041,600 | +4,406,310 | +5,447,910 |
| Extension Service: | | | | | |
| Payments to States | 53,715,000 | 56,580,000 | | +2,865,000 | +2,865,000 |
| Retirement costs for extension agents | 5,674,375 | 5,961,000 | | +286,625 | +286,625 |
| Penalty mail | 2,491,307 | 2,491,307 | | | |
| Federal Extension Service | 2,242,540 | 2,392,660 | +12,700 | +137,420 | +150,120 |
| Total, Extension Service | 64,123,222 | 67,424,967 | +12,700 | +3,289,045 | +3,301,745 |
| Farmer Cooperative Service | 615,800 | 644,650 | +3,700 | +25,150 | +28,850 |
| Soil Conservation Service: | | | | | |
| Conservation operations | 82,322,000 | 82,882,000 | +600,000 | −40,000 | +560,000 |
| Watershed protection | 22,750,000 | 27,750,000 | | +5,000,000 | +5,000,000 |
| Flood prevention | 18,000,000 | 15,000,000 | | −3,000,000 | −3,000,000 |
| Great Plains conservation program | 10,000,000 | 10,000,000 | | | |
| Water conservation and utilization projects | 75,000 | | | −75,000 | −75,000 |
| Total, Soil Conservation Service | 133,147,000 | 135,632,000 | +600,000 | +1,885,000 | +2,485,000 |
| Agricultural Conservation Program Service | 241,500,000 | [3] 242,600,000 | | +1,100,000 | +1,100,000 |
| Agricultural Marketing Service: | | | | | |
| Marketing research and agricultural estimates | 15,412,500 | 16,571,500 | +103,000 | +1,056,000 | +1,159,000 |
| Marketing services | 26,054,600 | 26,570,400 | +208,300 | +307,500 | +515,800 |
| Payments to States | 1,195,000 | 1,195,000 | | | |
| School lunch program | [4] 110,000,000 | [4] 110,000,000 | | | |
| Total, Agricultural Marketing Service | 152,662,100 | 154,336,900 | +311,300 | +1,363,500 | +1,674,800 |
| Foreign Agricultural Service: | | | | | |
| Salaries and expenses | 3,518,300 | 4,637,300 | +19,000 | +1,100,000 | +1,119,000 |

| | | | | | |
|---|---|---|---|---|---|
| Total, Agricultural Marketing Service | 152, 662, 100 | 154, 336, 900 | +311, 300 | +1, 363, 500 | +1, 674, 800 |
| Foreign Agricultural Service: | | | | | |
| Salaries and expenses | 3, 518, 300 | 4, 637, 300 | +19, 000 | +1, 100, 000 | +1, 119, 000 |
| Salaries and expenses (special foreign currency program) | [1] 5, 843, 378 | 14, 621, 800 | | +8, 778, 422 | +8, 778, 422 |
| Total, Foreign Agricultural Service | 9, 361, 678 | 19, 259, 100 | +19, 000 | +9, 878, 422 | +9, 897, 422 |
| Commodity Exchange Authority | 909, 500 | 941, 325 | +6, 600 | +25, 225 | +31, 825 |
| Commodity Stabilization Service: | | | | | |
| Acreage allotments and marketing quotas | 39, 135, 000 | 40, 135, 000 | | +1, 000, 000 | +1, 000, 000 |
| Sugar Act program | 71, 500, 000 | 74, 500, 000 | | +3, 000, 000 | +3, 000, 000 |
| Conservation reserve program | 335, 000, 000 | 361, 783, 000 | | +26, 783, 000 | +26, 783, 000 |
| Total, Commodity Stabilization Service | 445, 635, 000 | 476, 418, 000 | | +30, 783, 000 | +30, 783, 000 |
| Federal Crop Insurance Corporation (operating and administrative expenses) | 6, 376, 700 | 6, 376, 700 | | | |
| Rural Electrification Administration (salaries and expenses) | 9, 632, 000 | 9, 632, 000 | | | |
| Farmers Home Administration (salaries and expenses) | 30, 744, 750 | 31, 467, 650 | +226, 600 | +496, 300 | +722, 900 |
| Office of the General Counsel | 3, 162, 025 | 3, 358, 845 | +20, 800 | +176, 020 | +196, 820 |
| Office of the Secretary | 2, 881, 000 | 2, 899, 500 | +18, 500 | | +18, 500 |
| Office of Information | 1, 431, 665 | 1, 478, 685 | +6, 750 | +40, 270 | +47, 020 |
| Library | 831, 900 | 895, 660 | +6, 880 | +56, 880 | +63, 760 |
| Forest Service | 138, 449, 000 | 149, 536, 500 | +530, 000 | +10, 557, 500 | +11, 087, 500 |
| Total, annual appropriations for regular activities | 1, 424, 170, 638 | 1, 491, 057, 690 | +2, 804, 430 | +64, 082, 622 | +66, 887, 052 |
| Deduct amount for Forest Service | −138, 449, 000 | −149, 536, 500 | −530, 000 | −10, 557, 500 | −11, 087, 500 |
| Total, annual appropriations for regular activities from general fund of Treasury as shown in subcommittee print | 1, 285, 721, 638 | 1, 341, 521, 190 | +2, 274, 430 | +53, 525, 122 | +55, 799, 552 |
| Corporations: | | | | | |
| Federal Crop Insurance Corporation Fund (operating expenses payable from premium income) | [2, 330, 000] | [2, 830, 000] | [+31, 400] | [+468, 600] | [+500, 000] |
| Commodity Credit Corporation: | | | | | |
| Restoration of capital impairment | [5] 1, 435, 424, 413 | 1, 325, 000, 000 | | −110, 424, 413 | −110, 424, 413 |
| Corporate administrative expense limitation | [6] [42, 800, 000] | [48, 428, 000] | [+326, 500] | [+5, 301, 500] | [+5, 628, 000] |
| Reimbursement for costs of special activities in 1959 and 1960: | | | | | |
| For special commodity disposal programs: | | | | | |
| Sales of surplus agricultural commodities for foreign currencies (Public Law 480, approved July 10, 1954) | 968, 016, 000 | 881, 000, 000 | | −87, 016, 000 | −87, 016, 000 |
| Other (International Wheat Agreement, emergency famine relief to freiendly peoples, transfer of bartered materials to supplemental stockpile, and waterfowl feed program) | 297, 418, 000 | 587, 027, 000 | | +289, 609, 000 | +289, 609, 000 |
| For advances for animal disease eradication activities | 1, 056, 500 | | | −1, 056, 500 | −1, 056, 500 |
| For advances for costs incurred for inspecting and grading tobacco and classing cotton | 1, 607, 000 | 715, 000 | | −892, 000 | −892, 000 |
| Total, reimbursement to Commodity Credit Corporation for special activities | 1, 268, 097, 500 | 1, 468, 742, 000 | | +200, 644, 500 | +200, 644, 500 |
| Total, corporations | 2, 703, 521, 913 | 2, 793, 742, 000 | | +90, 220, 087 | +90, 220, 087 |

See footnotes at end of table, p. 34.

TABLE 1.—*Budget estimates, 1961, compared with appropriations and REA and FHA loan authorizations, 1960*—Continued

| Agency or item | Appropriations and loan authorizations, 1960 | Budget estimates, 1961 | Increase (+) or decrease (−) | | |
|---|---|---|---|---|---|
| | | | Health benefit costs on base for 1961 | Other | Total |
| Loan authorizations: | | | | | |
| Rural Electrification Administration loans: | | | | | |
| Rural electrification | [7] $136,000,000 | [7] $110,000,000 | | −$26,000,000 | −$26,000,000 |
| Rural telephone | [8] 104,000,000 | [8] 80,000,000 | | −24,000,000 | −24,000,000 |
| Total, Rural Electrification Administration | 240,000,000 | 190,000,000 | | −50,000,000 | −50,000,000 |
| Farmers' Home Administration loans: | | | | | |
| Farm ownership | 24,000,000 | 20,000,000 | | −4,000,000 | −4,000,000 |
| Farm operating (production and subsistence) | 180,000,000 | 154,000,000 | | −26,000,000 | −26,000,000 |
| Soil and water conservation | 2,000,000 | 3,000,000 | | +1,000,000 | +1,000,000 |
| Total, Farmers' Home Administration | [9] 206,000,000 | 177,000,000 | | −29,000,000 | −29,000,000 |
| Total, loan authorizations | 446,000,000 | 367,000,000 | | −79,000,000 | −79,000,000 |
| Permanent appropriations: | | | | | |
| Removal of surplus agricultural commodities (30 percent of customs receipts) | 251,446,365 | 318,000,000 | | +66,553,635 | +66,553,635 |
| National Wool Act | 50,050,331 | 51,000,000 | | +949,687 | +949,687 |
| All other permanent appropriations | 49,608,758 | 55,770,170 | | +6,161,412 | +6,161,412 |
| Total, permanent appropriations | 351,105,436 | 424,770,170 | | +73,664,734 | +73,664,734 |
| Deduct permanent appropriations for the Forest Service | −48,908,758 | −55,100,170 | | −6,191,412 | −6,191,412 |
| Total, permanent appropriations in subcommittee print | 302,196,678 | 369,670,000 | | +67,473,322 | +67,473,322 |

[1] Represents allocations of foreign currencies accruing from sales of agricultural commodities under title I of Public Law 480, as amended.

[2] In addition, act authorizes reappropriation of $1,000,000 of 1959 funds to provide for additional labor at research laboratories in the field.

[3] Advance authorization for the 1961 program is proposed at $100,000,000.

[4] In addition, the 1960 appropriation act provided that $43,657,248 shall be transferred from sec. 32 funds for purchase of agricultural commodities for distribution to schools; the 1961 budget estimates propose the transfer of $40,000,000 for the same purpose.

[5] In addition, a 1960 supplemental is anticipated in the amount of $675,000,000.

[6] Includes anticipated supplemental estimate of $800,000 to meet an estimated increase in the volume of price support activities.

[7] In addition, a reserve authorization of $25,000,000 is available in 1960. Including the carryover of funds from prior years, it is estimated that loans totaling $245,000,000 will be made in fiscal year 1960, and $220,000,000 in 1961.

[8] Includes anticipated use of the reserve authorization of $25,000,000 in 1961. Including the carryover of funds from prior years, it is estimated that loans totaling $105,000,000 will be made in fiscal year 1960, and $81,000,000 in 1961.

[9] In addition, contingency fund of $20,000,000 is available.



TABLE 2.—*Subappropriations—Appropriations and REA and FHA loan authorizations, 1959, 1960 and budget estimates, 1961*

[NOTE.—Amounts for 1959 and 1960 include all supplemental appropriations to date, and are adjusted for comparability with the appropriation structure proposed in the 1961 budget Estimates. Amounts in brackets are not included in totals.]

TABLE 2.—*Subappropriations—Appropriations and REA and FHA loan authorizations, 1959, 1960 and budget estimates, 1961*

[NOTE.—Amounts for 1959 and 1960 include all supplemental appropriations to date, and are adjusted for comparability with the appropriation structure proposed in the 1961 budget Estimates. Amounts in brackets are not included in totals.]

| Agency or item | Appropriations and loan authorizations, 1959 [1] | Appropriations and loan authorizations, 1960 | Budget estimates, 1961 | Increase (+), or decrease (−), budget estimates, 1961 compared with appropriations and loan authorizations, 1960 | | |
|---|---|---|---|---|---|---|
| | | | | Health benefit costs on base for 1961 | Other | Total |
| ANNUAL APPROPRIATIONS FOR REGULAR ACTIVITIES | | | | | | |
| Agricultural research service: | | | | | | |
| Salaries and expenses: | | | | | | |
| Research | $62,963,515 | $67,721,590 | $68,981,700 | +$497,200 | +$762,910 | +$1,260,110 |
| Plant and animal disease and pest control [2] | [3] 52,934,000 | 49,800,600 | 48,775,600 | +306,600 | −1,331,600 | −1,025,000 |
| Meat inspection | [4] 20,785,100 | 21,324,900 | 21,562,700 | +237,800 | | +237,800 |
| Total, salaries and expenses | 136,682,615 | [5] 138,847,090 | 139,320,000 | +1,041,600 | −568,690 | +472,910 |
| Salaries and expenses (special foreign currency program) | [6] 7,596,484 | [6] 12,056,500 | 15,131,500 | | +3,075,000 | +3,075,000 |
| Construction of facilities | | | 900,000 | | +900,000 | +900,000 |
| State experiment stations: | | | | | | |
| Payments to States and Puerto Rico | 31,553,708 | 31,553,708 | 32,553,708 | | +1,000,000 | +1,000,000 |
| Penalty mail | 250,000 | 250,000 | 250,000 | | | |
| Total, State experiment stations | 31,803,708 | 31,803,708 | 32,803,708 | | +1,000,000 | +1,000,000 |
| Total, Agricultural Research Service | 176,082,807 | 182,707,298 | 188,155,208 | +1,041,600 | +4,406,310 | +5,447,910 |
| Extension Service: | | | | | | |
| Cooperative extension work, payments and expenses: | | | | | | |
| Payments to States and Puerto Rico | 53,715,000 | 53,715,000 | 56,580,000 | | +2,865,000 | +2,865,000 |
| Retirement costs for extension agents | 5,479,375 | 5,674,375 | 5,961,000 | | +286,625 | +286,625 |
| Penalty mail | 2,491,307 | 2,491,307 | 2,491,307 | | | |
| Federal Extension Service | 2,250,640 | 2,242,540 | 2,392,660 | +12,700 | +137,420 | +150,120 |
| Total, Extension Service | 63,936,322 | 64,123,222 | 67,424,967 | +12,700 | +3,289,045 | +3,301,745 |
| Farmer Cooperative Service | 617,900 | 615,800 | 644,650 | +3,700 | +25,150 | +28,850 |
| Soil Conservation Service: | | | | | | |
| Conservation operations | 80,882,800 | 82,322,000 | 82,882,000 | +600,000 | −40,000 | +560,000 |
| Watershed protection [7] | 25,500,000 | 22,750,000 | 27,750,000 | | +5,000,000 | +5,000,000 |
| Flood prevention [7] | 18,000,000 | 18,000,000 | 15,000,000 | | −3,000,000 | −3,000,000 |
| Great Plains conservation program [7] | 10,000,000 | 10,000,000 | 10,000,000 | | | |
| Water conservation and utilization projects [7] | 335,000 | 75,000 | | | −75,000 | −75,000 |
| Total, Soil Conservation Service | 134,717,800 | 133,147,000 | 135,632,000 | +600,000 | +1,885,000 | +2,485,000 |

See footnotes at end of table, p. 39.

TABLE 2.—*Subappropriations—Appropriations and REA and FHA loan authorizations, 1959, 1960 and budget estimates, 1961*—Continued

| Agency or item | Appropriations and loan authorizations, 1959 [1] | Appropriations and loan authorizations, 1960 | Budget estimates, 1961 | Increase (+), or decrease (−), budget estimates, 1961 compared with appropriations and loan authorizations, 1960 | | |
|---|---|---|---|---|---|---|
| | | | | Health benefit costs on base for 1961 | Other | Total |
| ANNUAL APPROPRIATIONS FOR REGULAR ACTIVITIES—continued | | | | | | |
| Agricultural Conservation Program Service | $235,000,000 | $241,500,000 | [8] $242,600,000 | | +$1,100,000 | +$1,100,000 |
| Agricultural Marketing Service: | | | | | | |
| Marketing research and service: | | | | | | |
| Marketing research and agricultural estimates | 15,371,100 | 15,412,500 | 16,571,500 | +$103,000 | +1,056,000 | +1,159,000 |
| Marketing services | [9] 22,595,600 | 26,054,600 | 26,570,400 | +208,300 | +307,500 | +515,800 |
| Total, marketing research and service | 37,966,700 | 41,467,100 | 43,141,900 | +311,300 | +1,363,500 | +1,674,800 |
| Payments to States | 1,160,000 | 1,195,000 | 1,195,000 | | | |
| School lunch program [10] | 110,000,000 | 110,000,000 | 110,000,000 | | | |
| Total, Agricultural Marketing Service | 149,126,700 | 152,662,100 | 154,336,900 | +311,300 | +1,363,500 | +1,674,800 |
| Foreign Agricultural Service: | | | | | | |
| Salaries and expenses [11] | 4,234,320 | 3,518,300 | 4,637,300 | +19,000 | +1,100,000 | +1,119,000 |
| Salaries and expenses (special foreign currency program) | [6] 5,493,829 | [6] 5,843,378 | 14,621,800 | | +8,778,422 | +8,778,422 |
| Total, Foreign Agricultural Service | 9,728,149 | 9,361,678 | 19,259,100 | +19,000 | +9,878,422 | +9,897,422 |
| Commodity exchange authority | 895,500 | 909,500 | 941,325 | +6,600 | +25,225 | +31,825 |
| Commodity Stabilization Service: | | | | | | |
| Acreage allotments and marketing quotas | [12] 41,715,000 | 39,135,000 | 40,135,000 | | +1,000,000 | +1,000,000 |
| Sugar Act program | 76,000,000 | 71,500,000 | 74,500,000 | | +3,000,000 | +3,000,000 |
| Conservation reserve program [13] | 200,000,000 | 335,000,000 | 361,783,000 | | +26,783,000 | +26,783,000 |
| Acreage reserve program | [14] 609,450,000 | | | | | |
| Total, Commodity Stabilization Service | 927,165,000 | 445,635,000 | 476,418,000 | | +30,783,000 | +30,783,000 |
| Federal Crop Insurance Corporation (operating and administrative expenses) [15] | 6,376,700 | 6,376,700 | 6,376,700 | | | |
| Rural Electrification Administration (salaries and expenses) | 9,601,300 | 9,632,000 | 9,632,000 | | | |
| Farmers Home Administration (salaries and expenses) | 31,189,500 | 30,744,750 | 31,467,650 | +226,600 | +496,300 | +722,900 |
| Office of the General Counsel | 3,208,750 | 3,162,025 | 3,358,845 | +20,800 | +176,020 | +196,820 |
| Office of the Secretary | 2,860,250 | 2,881,000 | 2,899,500 | +18,500 | | +18,500 |
| Office of Information | 1,428,665 | 1,431,665 | 1,478,685 | +6,750 | +40,270 | +47,020 |
| Library | 764,522 | 831,900 | 895,660 | +6,880 | +56,880 | +63,760 |
| Forest Service: | | | | | | |
| Forest protection and utilization: | | | | | | |
| Forest land management [16] | [17] 87,831,400 | [18] 81,815,800 | 88,159,700 | +432,000 | +5,911,900 | +6,343,900 |
| Forest research | [17] 16,545,153 | [19] 14,545,400 | 16,332,000 | +91,000 | +1,695,600 | +1,786,600 |
| State and private forestry cooperation | [17] 12,807,800 | 12,327,800 | 12,334,800 | +7,000 | | +7,000 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Forest Service: | | | | | | |
| Forest protection and utilization: | | | | | | |
| Forest land management [16] | [17] 87,831,400 | [18] 81,815,800 | 88,159,700 | +432,000 | +5,911,900 | +6,343,900 |
| Forest research | [17] 16,545,153 | [19] 14,545,400 | 16,332,000 | +91,000 | +1,695,600 | +1,786,600 |
| State and private forestry cooperation | [17] 12,807,800 | 12,327,800 | 12,334,800 | +7,000 | | +7,000 |
| Total, forest protection and utilization | 117,184,353 | 108,689,000 | 116,826,500 | +530,000 | +7,607,500 | +8,137,500 |
| Forest roads and trails [7] | 26,000,000 | [20] 28,000,000 | 30,000,000 | | +2,000,000 | +2,000,000 |
| Access roads | | [21] 1,000,000 | 1,000,000 | | | |
| Acquisition of lands for national forests: | | | | | | |
| Superior National Forest [7] | | | 1,000,000 | | +1,000,000 | +1,000,000 |
| Special acts (Cache National Forest) | 10,000 | 10,000 | 10,000 | | | |
| Cache National Forest, Utah [7] | 50,000 | 50,000 | | | −50,000 | −50,000 |
| Cooperative range improvements | 700,000 | 700,000 | 700,000 | | | |
| Total, Forest Service | 143,944,353 | 138,449,000 | 149,536,500 | +530,000 | +10,557,500 | +11,087,500 |
| Deduct, to avoid duplication in total, amounts transferred pursuant to provisions in the Second Supplemental Appropriation Act, 1959 | −28,884,852 | | | | | |
| Total, annual appropriations for regular activities | 1,867,759,366 | 1,424,170,638 | 1,491,057,690 | +2,804,430 | +64,082,622 | +66,887,052 |
| Deduct amount for Forest Service | −138,512,153 | −138,449,000 | −149,536,500 | −530,000 | −10,557,500 | −11,087,500 |
| Total, annual appropriations for regular activities from general fund of Treasury as shown in subcommittee print | 1,729,247,213 | 1,285,721,638 | 1,341,521,190 | +2,274,430 | +53,525,122 | +55,799,552 |
| Corporations: | | | | | | |
| Federal Crop Insurance Corporation fund (operating expenses payable from premium income) | [2,297,000] | [2,330,000] | [2,830,000] | [+31,400] | [+468,600] | [+500,000] |
| Commodity Credit Corporation: | | | | | | |
| Restoration of capital impairment | 1,760,399,886 | [22] 1,435,424,413 | [24] 1,325,000,000 | | −110,424,413 | −110,424,413 |
| Corporate administrative expense limitation [23] | [25] [39,600,000] | [26] [42,800,000] | [48,428,000] | [+326,500] | [+5,301,500] | [+5,628,000] |
| Reimbursement for costs of special activities: | | | | | | |
| To repay Commodity Credit Corporation for estimated costs of authorized activities financed from CCC funds in 1958, 1959, and 1960: | | | | | | |
| For special commodity disposal programs: | | | | | | |
| International wheat agreement | 80,800,000 | 63,875,000 | 49,042,000 | | −14,833,000 | −14,833,000 |
| Emergency famine relief to friendly peoples | 119,270,000 | 104,508,000 | 115,000,000 | | +10,492,000 | +10,492,000 |
| Sales of surplus agricultural commodities for foreign currencies (Public Law 480, approved July 10, 1954) | 1,033,515,000 | 968,016,000 | 881,000,000 | | −87,016,000 | −87,016,000 |
| Transfer of bartered materials for supplemental stockpile | 82,250,335 | 129,000,000 | 422,950,000 | | +293,950,000 | +293,950,000 |
| Waterfowl feed program | 18,506 | 35,000 | 35,000 | | | |
| For advances for eradication of foot-and-mouth disease and vesicular exanthema in swine | 1,280,900 | 1,056,500 | | | −1,056,500 | −1,056,500 |
| For advances for eradication of brucellosis in cattle | 18,109,200 | | | | | |
| For advances for costs incurred for inspecting and grading tobacco and classing cotton | 1,510,870 | 1,607,000 | 715,000 | | −892,000 | −892,000 |
| Total, reimbursement to Commodity Credit Corporation for special activities | [27] 1,336,754,811 | 1,268,097,500 | 1,468,742,000 | | +200,644,500 | +200,644,500 |
| Total, corporations | 3,097,154,697 | 2,703,521,913 | 2,793,742,000 | | +90,220,087 | +90,220,087 |

See footnotes at end of table, p. 39

TABLE 2.—*Subappropriations—Appropriations and REA and FHA loan authorizations, 1959, 1960 and budget estimates, 1961*—Continued

| Agency or item | Appropriations and loan authorizations, 1959 [1] | Appropriations and loan authorizations, 1960 | Budget estimates, 1961 | Increase (+), or decrease (−), budget estimates, 1961 compared with appropriations and loan authorizations, 1960 | | |
|---|---|---|---|---|---|---|
| | | | | Health benefit costs on base for 1961 | Other | Total |
| ANNUAL APPROPRIATIONS FOR REGULAR ACTIVITIES—continued | | | | | | |
| Loan authorizations: | | | | | | |
| Rural Electrification Administration loans: | | | | | | |
| Rural electrification | [28] $317,000,000 | [29] $136,000,000 | [30] $110,000,000 | | −$26,000,000 | −$26,000,000 |
| Rural telephone | [31] 92,500,000 | [32] 104,000,000 | [33] 80,000,000 | | −24,000,000 | −24,000,000 |
| Total, Rural Electrification Administration loans | 409,500,000 | 240,000,000 | 190,000,000 | | −50,000,000 | −50,000,000 |
| Farmers Home Administration loans: | | | | | | |
| Farm ownership | 29,000,000 | 24,000,000 | 20,000,000 | | −4,000,000 | −4,000,000 |
| Farm operating (production and subsistence) | 187,000,000 | 180,000,000 | 154,000,000 | | −26,000,000 | −26,000,000 |
| Soil and water conservation | 5,500,000 | 2,000,000 | 3,000,000 | | +1,000,000 | +1,000,000 |
| Total, Farmers Home Administration loans | [34] 221,500,000 | [34] 206,000,000 | 177,000,000 | | −29,000,000 | −29,000,000 |
| Total, loan authorizations | 631,000,000 | 446,000,000 | 367,000,000 | | −79,000,000 | −79,000,000 |
| Permanent appropriations: | | | | | | |
| General fund appropriations: | | | | | | |
| Removal of surplus agricultural commodities (30 percent of customs receipts)[35] | 235,936,663 | 251,446,365 | 318,000,000 | | +66,553,635 | +66,553,635 |
| National Wool Act, agriculture | 24,453,099 | 50,050,313 | 51,000,000 | | +949,687 | +949,687 |
| Payments to school funds, Arizona and New Mexico, national forests receipts | 117,161 | 113,861 | 113,861 | | | |
| Total | 260,506,923 | 301,610,539 | 369,113,861 | | +67,503,322 | +67,503,322 |
| Appropriations from special sources: | | | | | | |
| Alterations and improvements, Animal Quarantine Station, Clifton, N.J. | | 30,000 | | | −30,000 | −30,000 |
| Perishable Agricultural Commodities Act fund (special receipt funds)[35] | 673,278 | 670,000 | 670,000 | | | |
| Roads and trails for States, national forests receipts [35] | 8,884,693 | 11,860,000 | 13,640,000 | | +1,780,000 | +1,780,000 |
| Expenses, brush disposal, Forest Service (special receipt fund)[35] | 5,795,594 | 6,500,000 | 6,500,000 | | | |
| Forest fire prevention [35] | 15,453 | 20,000 | 20,000 | | | |
| Restoration of forest lands and improvements | 12,642 | 100,000 | 100,000 | | | |
| Payment to Minnesota (Cook, Lake, and St. Louis Counties) from national forest receipts | 48,240 | 121,309 | 121,309 | | | |
| Payments due counties, submarginal land program, Farm Tenant Act (receipt funds) | 460,109 | 500,000 | 500,000 | | | |
| Payments to States and Territories from the national forest receipts | 22,204,787 | 29,668,588 | 34,105,000 | | +4,436,412 | +4,436,412 |
| Construction of improvements, Salt Lake City, Utah | | 25,000 | | | −25,000 | −25,000 |

| | | | | | | |
|---|---|---|---|---|---|---|
| (receipt funds) | 460,109 | 500,000 | 500,000 | | | |
| Payments to States and Territories from the national forest receipts | 22,204,787 | 29,668,588 | 34,105,000 | | +4,436,412 | +4,436,412 |
| Construction of improvements, Salt Lake City, Utah | | 25,000 | | | −25,000 | −25,000 |
| Total | 38,094,796 | 49,494,897 | 55,656,309 | | +6,161,412 | +6,161,412 |
| Total, permanent appropriations | 298,601,719 | 351,105,436 | 424,770,170 | | +73,664,734 | +73,664,734 |
| Deduct permanent appropriations for the Forest Service | −37,538,679 | −48,908,758 | −55,100,170 | | −6,191,412 | −6,191,412 |
| Total, permanent appropriations in subcommittee print | 261,063,040 | 302,196,678 | 369,670,000 | | +67,473,322 | +67,473,322 |

[1] Includes amounts provided in the Second Supplemental Appropriation Act, 1959 for increased pay and postal costs.

[2] Includes contingency funds of $1,500,000 for use to the extent necessary to meet emergency outbreaks of insects and plant diseases.

[3] Includes $3,500,000 appropriated in the Supplemental Appropriation Act, 1959.

[4] Includes $1,750,000 appropriated in the Supplemental Appropriation Act, 1959.

[5] In addition, act authorizes reappropriation of $1,000,000 of 1959 funds to provide for additional labor to be employed to strengthen the work at research institutions in the field.

[6] Represents allocations by the Budget Bureau of foreign currencies accruing from sales of agricultural commodities under title I of the Agricultural Trade Development and Assistance Act of 1954, as amended (Public Law 480). Obligations of foreign currencies for the special foreign currency programs equivalent to the following amounts in U.S. dollars were incurred in fiscal year 1959 and are estimated in fiscal year 1960: Agricultural Research Service, 1959, $1,653,528; 1960, $21,917,831; Foreign Agricultural Service, 1959, $4,847,730; 1960, $12,598,015.

[7] In addition, prior year balances available.

[8] Advance authorization for the 1961 program is proposed at $100,000,000.

[9] Includes $20,000 provided by the Second Supplemental Appropriation Act, 1959.

[10] In addition, the appropriation acts and budget estimate provide that the following amounts shall be transferred from sec. 32 funds for purchase of agricultural commodities for distribution to schools: 1959, $35,000,000; 1960, $43,657,248; 1961 budget estimate, $40,000,000.

[11] 1961 budget estimate proposes that $2,539,000 of sec. 32 funds shall be transferred to and merged with this appropriation. Comparable amounts of $2,493,000 were available in each of the fiscal years 1959 and 1960.

[12] Includes $2,000,000 provided by the Second Supplemental Appropriation Act, 1959.

[13] In addition, 1959 and 1960 acts contain provision limiting payments to producers to $375,000,000 in any calendar year.

[14] Includes $279,450,000 appropriated in the Supplemental Appropriation Act, 1959.

[15] In addition, premium income available for operating and administrative expenses is indicated below under "Corporations."

[16] Includes contingency funds for use to the extent necessary as follows: (1) for the Forest Pest Control Act, 1959, $1,760,000; 1960, $1,910,000; 1961, $1,910,000; and (2) for emergency forest firefighting, 1959, 1960, and 1961, $5,000,000.

[17] Reflects transfers of $155,000 from "Forest research" and $15,000 from "State and private forestry cooperation" to "Forest land management" for use in combating unanticipated forest-pest outbreaks in fiscal year 1959, and the amount for "Forest land management" includes $8,500,000 provided by the 2d Supplemental Appropriation Act, 1959.

[18] Includes $4,000,000 appropriated in the Supplemental Appropriation Act, 1960.

[19] Includes $500,000 appropriated in the Supplemental Appropriation Act, 1960.

[20] Includes $2,000,000 appropriated in the Supplemental Appropriation Act, 1960.

[21] Appropriated in the Supplemental Appropriation Act, 1960.

[22] In addition, a 1960 supplemental is anticipated in the amount of $675,000,000: $100,000,000 to complete restoration of 1958 realized losses and $575,000,000 for partial restoration of 1959 realized losses.

[23] Appropriation acts and budget estimate provide that not less than 7 percent of the limitation shall be placed in reserve for use only as necessary to carry out program operations.

[24] Consists of $632,000,994 to complete restoration of 1959 realized losses and $692,999,006 for partial restoration of 1960 realized losses.

[25] Includes $1,800,000 authorized in the 2d Supplemental Appropriation Act, 1959.

[26] Includes anticipated supplemental estimate of $800,000 to meet an estimated increase in the volume of price support activities.

[27] Appropriated in the 2d Supplemental Appropriation Act, 1959, for 1958 program costs.

[28] In addition, a reserve authorization of $25,000,000 and balances from prior years were available. Loans totaling $177,292,100 were made in fiscal year 1959.

[29] In addition, a reserve authorization of $25,000,000 is available. Including the carryover of funds from prior years, it is estimated that loans totaling $245,000,000 will be made in fiscal year 1960.

[30] Including the carryover of funds from prior years, it is estimated that loans totaling $220,000,000 will be made in fiscal year 1961.

[31] Includes use of the reserve authorization of $25,000,000. Including the carryover of funds from prior years, loans totaling $98,923,000 were made in fiscal year 1959.

[32] Includes anticipated use of the reserve authorization of $25,000,000. Including the carryover of funds from prior years, it is estimated that loans totaling $105,000,000 will be made in fiscal year 1960.

[33] Including the carryover of funds from prior years, it is estimated that loans totaling $81,000,000 will be made in fiscal year 1961.

[34] In addition, a contingency fund of $20,000,000 is available, of which not to exceed $5,000,000 may be used for farm ownership loans and the balance for farm operating loans. The 1959 figures include use of $5,000,000 contingency for farm ownership loans and $7,000,000 for farm operating loans.

[35] In addition, prior year balances available.

TABLE 3.—*Statement of increases and decreases, budget estimates, 1961, compared with appropriations and REA and FHA loan authorizations, 1960*

[Based on appropriations and authorizations for 1960 adjusted for comparability with the appropriation structure proposed in the 1961 budget estimates. Amounts in brackets are not included in totals]

| | | |
|---|---|---|
| Annual appropriations for regular activities: | | |
| Total appropriations, 1960 | | $1,424,170,638 |
| Budget estimates, 1961 | | 1,491,057,690 |
| Net increase, 1961 | | +66,887,052 |
| Agricultural Research Service: | | |
| Salaries and expenses: | | |
| Research: | | |
| Decrease due to elimination of nonrecurring amounts provided in 1960 for construction of laboratories and improvement of facilities | −$3,150,000 | |
| Decrease due to providing in the direct appropriation to General Services Administration for certain leasing costs previously paid from this appropriation | −8,990 | |
| For staffing and operating National Animal Disease Laboratory, Ames, Iowa, in 1961 (portion applicable to research program—portion applicable to "Plant and animal disease and pest control" shown under that heading below) | +805,600 | |
| For intensive research to develop chemicals and biological measures for use in agriculture which will reduce or avoid hazards from pesticide residues | +1,502,800 | |
| For economic research to determine alternate systems of farming to enable feed-grain and livestock farmers to adjust more readily to market demands | +100,700 | |
| Increase of $1,512,800 for utilization research as follows: | | |
| Research to increase the industrial use of cereal grains (in addition, it is proposed to redirect work from the present farm research program to the extent of $700,000 to place greater emphasis on this utilization research) | +506,600 | |
| Research on cotton to develop new and improved textiles and processes ($503,000) and on wool to develop new types of yarns from coarse wool ($100,700) | +603,700 | |
| Research on castor oil to develop materials for use in solid fuels and other products and to improve the utilization of castor meal | +100,700 | |
| Research to expand or find new uses for animal fats | +301,800 | |
| For employee health benefit costs pursuant to Public Law 86-382 | +497,200 | |
| Net increase, research | | +1,260,110 |
| Plant and animal disease and pest control: | | |
| Decrease in animal disease control and eradication programs ($1,250,000 for brucellosis eradication and $850,000 for screwworm eradication) made possible by progress achieved | −$2,100,000 | |
| Decrease due to providing in the direct appropriation to General Services Administration for certain leasing costs previously paid from this appropriation | −38,300 | |
| For regulatory activities to carry out on a full-year basis the Department's added responsibilities under the amendment to the Federal Insecticide, Fungicide, and Rodenticide Act (Public Law 86-139), approved Aug. 7, 1959 | +100,700 | |
| For plant quarantine protection services to meet needs arising from the rapid increase in foreign travel and commerce | +504,600 | |
| For staffing and operating National Animal Disease Laboratory, Ames, Iowa, in 1961 (portion applicable to control program—portion applicable to "Research" shown under that heading above) | +201,400 | |
| For employee health benefit costs pursuant to Public Law 86-382 | +306,600 | |
| Net decrease, plant and animal disease and pest control | | −1,025,000 |
| Meat inspection: For employee health benefit costs pursuant to Public Law 86-382 | | +237,800 |
| Salaries and expenses (special foreign currency program): | | |
| For market development research (sec. 104(a), Public Law 480) (budget estimate, 1961, compared with Budget Bureau allocations, 1960) | −$8,966,500 | |
| (Including carryover into fiscal year 1960 of previous allocations of foreign currencies, it is estimated that there will be a decrease in obligations of $14,939,531 in foreign currencies for market development research.) | | |
| For agricultural and forest research (sec. 104(k), Public Law 480) (budget estimate, 1961, compared with Budget Bureau allocations, 1960) | +12,041,500 | |
| (Including carryover into fiscal year 1960 of previous allotments of funds to purchase foreign currencies, it is estimated that there will be an increase in obligations of $8,153,200 in foreign currencies for agricultural and forest research.) | | |
| Increase, salaries and expenses (special foreign currency program) | | +3,075,000 |

TABLE 3.—*Statement of increases and decreases, budget estimates, 1961, compared with appropriations and REA and FHA loan authorizations, 1960*—Continued

| | | |
|---|---|---|
| Annual appropriations for regular activities—Continued | | |
| Agricultural Research Service—Continued | | |
| Construction of facilities: | | |
| To relocate present facilities used for entomology research at Orlando, Fla. | | +$900,000 |
| State experiment stations: | | |
| For payments to States to strengthen research at the agricultural experiment stations | | +1,000,000 |
| Extension Service: | | |
| Payments to States and Puerto Rico: | | |
| For payments to States for cooperative agricultural extension work under sec. 3(c) of the Smith-Lever Act to strengthen and expand extension work in connection with the rural development program | | +2,865,000 |
| Retirement costs for extension agents: | | |
| To provide for employer's share of Federal contributions to the retirement fund for cooperative extension agents | | +286,625 |
| Federal Extension Service: | | |
| To strengthen the Federal staff of the Extension Service to meet increased responsibilities resulting from intensified extension programs and to provide national leadership in subject-matter areas not now covered | +$137,420 | |
| For employee health benefit costs pursuant to Public Law 86-382 | +12,700 | |
| Increase, Federal Extension Service | | +150,120 |
| Farmer Cooperative Service: | | |
| To strengthen research and technical assistance for farmer cooperatives | +$25,150 | |
| For employee health benefit costs pursuant to Public Law 86-382 | +3,700 | |
| Increase, Farmer Cooperative Service | | +28,850 |
| Soil Conservation Service: | | |
| Conservation operations: | | |
| Decrease due to providing a direct appropriation to the General Services Administration for certain leasing costs previously paid from this appropriation | −$40,000 | |
| For employee health benefit costs pursuant to Public Law 86-382 | +600,000 | |
| Net increase, conservation operations | | +560,000 |
| Watershed protection | | +5,000,000 |
| (Including fund carryovers into fiscal years 1960 and 1961, there will be a net decrease of $26,964 in total funds available, consisting of a decrease of $1,400,000 in project investigations and development of watershed work plans, a decrease of $2,750,000 in the Federal share of the cost of installing planned works of improvement in pilot watersheds due to completion of work, and a net increase of $4,123,036 in the installation of works of improvement in Public Law 566 watershed projects.) | | |
| Flood prevention: Decrease in appropriation for works of improvement in authorized flood prevention watersheds | | −3,000,000 |
| Water conservation and utilization projects: Decrease due to adequacy of funds available from prior years to furnish technical assistance and guidance to project settlers until the 1 remaining project is closed | | −75,000 |
| Agricultural conservation program service: | | |
| Agricultural conservation program: | | |
| For carrying out the 1960 program. The proposed 1961 appropriation of $242,600,000, together with $7,400,000 from underearnings on the 1958 program, will provide the $250,000,000 authorized for the 1960 program | | +1,100,000 |
| Agricultural Marketing Service: | | |
| Marketing research and agricultural estimates: | | |
| To develop improved methods and instruments for use in quality grading of agricultural products | +$266,700 | |
| To step up economic studies and market testing of new and improved uses for agricultural products | +70,500 | |
| To appraise the impact of vertical integration and other changes on marketing structure | +75,400 | |
| To develop methods for reducing deterioration of agricultural products in marketing channels | +50,200 | |
| To expand transportation and facilities studies to meet increased demands for data and technical assistance | +40,400 | |
| To initiate the long-range program to improve crop and livestock estimating services | +502,400 | |
| To provide for crop and livestock estimating services in Hawaii and Alaska | +50,400 | |
| For employee health benefit costs pursuant to Public Law 86-382 | +103,000 | |
| Increase, marketing research and agricultural estimates | | +$1,159,000 |
| Marketing services: | | |
| Decrease due to providing a direct appropriation to the General Services Administration for certain leasing costs previously paid from this appropriation | −45,200 | |
| To provide for more effective supervision of a greatly expanded volume of grain inspection by licensees | +85,800 | |
| To strengthen enforcement of the Federal Seed Act, as amended Aug. 1, 1958 | +50,450 | |
| To provide for more adequate enforcement of the Packers and Stockyards Act, as amended | +216,450 | |
| For employee health benefit costs pursuant to Public Law 86-382 | +208,300 | |
| Net increase, marketing services | | +515,800 |

TABLE 3.—*Statement of increases and decreases, budget estimates, 1961, compared with appropriations and REA and FHA loan authorizations, 1960*—Continued

| | | |
|---|---|---|
| Annual appropriations for regular activities—Continued | | |
| Foreign Agricultural Service: | | |
| Salaries and expenses: | | |
| To analyze the potential for large exports resulting from regional economic integration | +$15,000 | |
| To provide for collection, evaluation, and presentation of East European agricultural data | +25,000 | |
| To provide in this appropriation the dollars to pay attaché expenses paid in 1960 from foreign currencies | +950,000 | |
| To provide for opening attaché posts in selected Iron Curtain countries in Eastern Europe, and an additional post in Africa | +110,000 | |
| For employee health benefit costs pursuant to Public Law 86-382 | +19,000 | |
| Increase, salaries and expenses | | +$1,119,000 |
| Salaries and expenses (special foreign currency program): | | |
| Decrease due to provision under the regular appropriation of dollars to pay attaché expenses paid in 1960 from foreign currencies | −$950,000 | |
| For market development projects (sec. 104(a), Public Law 480) (budget estimate, 1961, compared with Budget Bureau allocations, 1960) | +8,728,422 | |
| (Including carryover into fiscal year 1960 of previous allocations of foreign currencies, it is estimated that there will be an increase in obligations of $3,248,785 in foreign currencies for market development projects.) | | |
| For agricultural and horticultural exhibitions (sec. 104(m), Public Law 480) (budget estimate, 1961, compared with Budget Bureau allocations, 1960) | +1,000,000 | |
| Net increase, salaries and expenses (special foreign currency program) | | +8,778,422 |
| Commodity Exchange Authority: | | |
| To expand and accelerate investigation and elimination of abuses and unlawful market practices | +$25,225 | |
| For employee health benefit costs pursuant to Public Law 86-382 | +6,600 | |
| Increase, Commodity Exchange Authority | | +31,825 |
| Commodity Stabilization Service: | | |
| Acreage allotments and marketing quotas: | | |
| To provide $1,475,450 for performance checking by June 30, 1961, of 75 percent of the acreage allotted for the 1961 crop of upland cotton, offset by a decrease of $367,245 in ASC county office expense due to reduced workload for other than performance checking on cotton | +$1,108,205 | |
| Decrease due to eliminating funds for liquidating corn acreage allotments | −108,205 | |
| Net increase, acreage allotments and marketing quotas | | +1,000,000 |
| Sugar Act program: Increase in mandatory payments to sugar producers for 1960 crop | | +3,000,000 |
| Conservation reserve program: | | |
| Increase in program payments to producers under the 1960 program due to an increase in the number of term contracts compared with the 1959 program | +$31,599,200 | |
| Decrease in operating expenses | −4,816,200 | |
| Net increase, conservation reserve program | | +26,783,000 |
| Farmers Home Administration: | | |
| Salaries and expenses: | | |
| To provide more adequate geographical coverage and loan servicing by the county offices | +$505,400 | |
| Decrease due to providing a direct appropriation to the General Services Administration for certain leasing costs previously paid from this appropriation | −9,100 | |
| For employee health benefit costs pursuant to Public Law 86-382 | +226,600 | |
| Net increase, salaries and expenses | | +722,900 |
| Office of the General Counsel: | | |
| For legal services incident to: | | |
| Activities under the Packers and Stockyards Act | +$75,440 | |
| Administration of the marketing agreement and order programs | +50,290 | |
| Other marketing and regulatory activities | +50,290 | |
| For employee health benefit costs pursuant to Public Law 86-382 | +20,800 | |
| Increase, Office of the General Counsel | | +196,820 |
| Office of the Secretary: For employee health benefit costs pursuant to Public Law 86-382 | | +18,500 |
| Office of Information: | | |
| To provide for adequate policy clearance and review of processed publications | +$9,080 | |
| To institute a regionalized radio tape service | +9,080 | |
| For cataloging and distributing photographs for use by the public and in Department publications | +22,110 | |
| For employee health benefit costs pursuant to Public Law 86-382 | +6,750 | |
| Increase, Office of Information | | +47,020 |

TABLE 3.—*Statement of increases and decreases, budget estimates, 1961, compared with appropriations and REA and FHA loan authorizations, 1960*—Continued

| | | |
|---|---|---|
| Annual appropriations for regular activities—Continued | | |
| Library: | | |
| For (1) processing gift and exchange material and making it available for use, (2) improving bibliographic service, and (3) providing for additional purchases of publications | +$56,880 | |
| For employee health benefit costs pursuant to Public Law 86-382 | +6,880 | |
| Increase, library | | +$63,760 |
| Forest Service: | | |
| Forest protection and utilization: | | |
| Forest land management: | | |
| To increase the rate of national forest timber sales and timber cutting | +$805,000 | |
| To increase the rate of providing adequate recreation facilities to accommodate public use of the national forests | +4,602,000 | |
| To strengthen fire control on the national forests | +301,000 | |
| Decrease due to providing a direct appropriation to the General Services Administration for certain leasing costs previously paid from this appropriation | −146,100 | |
| To accelerate the level of maintaining fire and administrative structural improvements | +350,000 | |
| For employee health benefit costs pursuant to Public Law 86-382 | +432,000 | |
| Net increase, forest land management | | +6,343,900 |
| Forest research: | | |
| Decrease due to providing a direct appropriation to the General Services Administration for certain leasing costs previously paid from this appropriation | −$158,400 | |
| To expand research in forest, watershed, wildlife habitat, recreation, and range management | +301,400 | |
| To speed the development of more effective methods of reducing the costs and damages from forest fires | +75,355 | |
| To increase forest insect research | +60,280 | |
| To increase forest disease research | +65,310 | |
| For research in forest products utilization | +251,155 | |
| For forest economics and marketing research | +100,500 | |
| For construction of research facilities | +1,000,000 | |
| For employee health benefit costs pursuant to Public Law 86-382 | +91,000 | |
| Net increase, forest research | | +1,786,600 |
| State and private forestry cooperation: For employee health benefit costs pursuant to Public Law 86-382 | | +7,000 |
| Forest roads and trails: To meet cash requirements for liquidation of obligations resulting from use of contract authorization | | +2,000,000 |
| Acquisition of lands for Superior National Forest: For the land purchase program in the Border Waters Canoe area, Superior National Forest, Minn. | | +1,000,000 |
| Acquisition of lands for Cache National Forest: Decrease due to completion of the authorization of $200,000 contained in the act of July 24, 1956 | | −50,000 |
| Net increase, Annual Appropriations for Regular Activities | | +66,887,052 |
| Deduct net increase for Forest Service | | −11,087,500 |
| Net increase, annual appropriations for regular activities from general fund of Treasury as shown in subcommittee print | | +55,799,552 |
| Corporations: | | |
| Federal Crop Insurance Corporation fund: Increase for operating expenses payable from premium income | | [+500,000] |
| Commodity Credit Corporation: | | |
| Restoration of capital impairment (estimated appropriation, 1961, of $1,325,000,000, to complete restoration of 1959 losses and to partially restore 1960 realized losses, compared with 1960 appropriation of $1,435,424,413 for partial restoration of 1958 losses) | | −110,424,413 |
| (NOTE.—A supplemental appropriation of $675,000,000 is anticipated in 1960 to complete restoration of 1958 losses and to partially restore 1959 losses.) | | |
| Corporate administrative expense limitation: | | |
| Increase in estimated price support operations | [+$845,500] | |
| For services in connection with donation of CCC commodities abroad under sec. 416, Agricultural Act of 1949, as amended | [+1,066,000] | |
| To provide a contingency reserve to enable the Corporation to meet unforeseeable increases in workload | [+3,390,000] | |
| For employee health-benefit costs pursuant to Public Law 86-382 | [+326,500] | |
| Net increase, corporate administrative expense limitation, Commodity Credit Corporation | | [+5,628,000] |

TABLE 3.—*Statement of increases and decreases, budget estimates, 1961, compared with appropriations and REA and FHA loan authorizations, 1960*—Continued

| | | |
|---|---|---|
| Corporations—Continued | | |
| Commodity Credit Corporation: | | |
| Reimbursement for costs of special activities: | | |
| To repay the Commodity Credit Corporation for estimated costs of special activities financed from CCC funds (estimated appropriation, 1961, for 1960 program costs and unrecovered balance of 1959 costs compared with appropriation, 1960, for estimated 1959 program costs): | | |
| For special commodity disposal programs: | | |
| Decrease for International Wheat Agreement | −$14,833,000 | |
| Increase for emergency famine relief to friendly peoples | +10,492,000 | |
| Decrease for sales of surplus agricultural commodities for foreign currencies | −87,016,000 | |
| Increase for transfer of bartered materials to supplemental stockpile | +293,950,000 | |
| Net increase, special commodity disposal program | | +$202,503,900 |
| Decrease for advances to Agricultural Research Service for animal disease eradication activities | | −1,056,500 |
| Decrease for advances to Agricultural Marketing Service for classing cotton and grading tobacco | | −892,000 |
| Net increase, corporations | | +90,220,087 |
| Loan authorizations: | | |
| Rural Electrification Administration: | | |
| Rural electrification loans | −$26,000,000 | |
| (The $110 million authorization requested for fiscal year 1961 together with balances of prior year funds will make a total of $220 million available for loans in 1961.) | | |
| Rural telephone loans | −24,000,000 | |
| | | −50,000,000 |
| (The $80 million authorization requested for fiscal year 1961 together with balances of prior year funds will make a total of $81 million available for loans in 1961.) | | |
| Farmers Home Administration: | | |
| Decrease in borrowing authorization for farm ownership loans | −4,000,000 | |
| Decrease in borrowing authorizations for farm operating loans | −26,000,000 | |
| Increase in borrowing authorization for soil and water conservation loans | +1,000,000 | |
| | | −29,000,000 |
| Net decrease, loan authorizations | | −79,000,000 |
| Permanent Appropriations: | | |
| Agricultural Research Service: Alterations and improvements, Animal Quarantine Station, Clifton, N.J., decrease due to nonrecurring nature of item | | −30,000 |
| Agricultural Marketing Service: | | |
| Removal of surplus agricultural commodities: Increase due to estimated increase in 1959 calendar year customs receipts (includes increases in transfer to Foreign Agricultural Service of $30,000 to strengthen the international trade fairs program and $16,000 for employee health benefit costs pursuant to Public Law 86-382. Of this appropriation $40 million is also proposed for transfer to the appropriation "School lunch program") | | +66,553,635 |
| Commodity Credit Corporation: | | |
| National Wool Act: For reimbursement to the Commodity Credit Corporation for costs incurred under the National Wool Act | | +949,687 |
| Forest Service: | | |
| Roads and trails for States: Increase due to estimated increase in national forest receipts in fiscal year 1960 | | +1,780,000 |
| Payments to States and territories from the National Forest Fund: Increase due to estimated increase in national forest receipts in fiscal year 1960 | | +4,436,412 |
| Construction of improvements, Salt Lake City, Utah: Decrease due to nonrecurring nature of project | | −25,000 |
| Net increase, permanent appropriations | | +73,664,734 |
| Deduct increase in Forest Service permanent appropriations | | −6,191,412 |
| Net increase, permanent appropriations in subcommittee print | | +67,473,322 |

TABLE 4.—*Appropriations and REA and FHA loan authorizations, fiscal years 1952 through 1960, and budget estimates, 1961*

[NOTE.—Amounts for 1952 through 1960 are adjusted for comparability with the appropriation structure proposed in the 1961 budget estimates. Amounts in parentheses are not in

TABLE 4.—*Appropriations and REA and FHA loan authorizations, fiscal years 1952 through 1960, and budget estimates, 1961*

[NOTE.—Amounts for 1952 through 1960 are adjusted for comparability with the appropriation structure proposed in the 1961 budget estimates. Amounts in parentheses are not included in totals.]

[Millions of dollars]

| | 1952 | 1953 [1] | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | Budget, estimates, 1961 |
|---|---|---|---|---|---|---|---|---|---|---|
| ANNUAL APPROPRIATIONS FOR REGULAR ACTIVITIES | | | | | | | | | | |
| **Agricultural Research Service:** | | | | | | | | | | |
| Salaries and expenses: | | | | | | | | | | |
| Research | 32.6 | 32.9 | 33.8 | 38.6 | 42.0 | 53.8 | 59.5 | 63.0 | 67.7 | 69.0 |
| Plant and animal disease and pest control | 19.0 | 18.8 | 17.9 | 18.3 | 20.7 | 29.7 | 30.1 | 52.9 | 49.8 | 48.8 |
| Meat inspection | 13.9 | 14.2 | 14.2 | 14.7 | 15.4 | 15.7 | 17.8 | 20.8 | 21.3 | 21.6 |
| Total, salaries and expenses | 65.5 | 65.9 | 65.9 | 71.6 | 78.0 | 99.2 | 107.4 | 136.7 | [2] 138.8 | 139.3 |
| Salaries and expenses (special foreign currency program) | | | | | | | [3] .4 | [3] 7.6 | [3] 12.1 | 15.1 |
| Construction of facilities | | | | | | | | | | .9 |
| State experiment stations (principally payments to States) | 12.7 | 12.7 | 13.7 | 19.5 | 24.8 | 29.8 | 30.6 | 31.8 | 31.8 | 32.8 |
| Research facilities (Plum Island) | 10.0 | | | | | | | | | |
| Animal disease laboratory facilities (Ames, Iowa) | | | | | .3 | 16.3 | | | | |
| **Extension Service:** | | | | | | | | | | |
| Cooperative extension work, payments, and expenses: | | | | | | | | | | |
| Payments to States and Puerto Rico | 32.1 | 32.3 | 32.3 | 39.7 | 45.5 | 49.9 | 50.7 | 53.7 | 53.7 | 56.6 |
| Other (retirement costs and penalty mail for extension agents, and Federal Extension Service) | 1.4 | 1.3 | 3.0 | 3.9 | 3.7 | 4.2 | 9.6 | 10.2 | 10.4 | 10.8 |
| **Farmer Cooperative Service** | .4 | .4 | .4 | .4 | .4 | .6 | .6 | .6 | .6 | .6 |
| **Soil Conservation Service:** | | | | | | | | | | |
| Conservation operations | 62.6 | 58.5 | 57.4 | 58.3 | 62.9 | 67.5 | 75.0 | 80.9 | 82.3 | 82.9 |
| Watershed protection | | | 5.0 | 7.2 | 12.0 | 17.5 | 25.5 | 25.5 | 22.8 | 27.8 |
| Flood prevention | 6.5 | 7.7 | 8.8 | 9.1 | 10.0 | 12.0 | 13.2 | 18.0 | 18.0 | 15.0 |
| Great Plains conservation program | | | | | | | 10.0 | 10.0 | 10.0 | 10.0 |
| Water conservation and utilization projects | .2 | .4 | .7 | .5 | (4) | .2 | .4 | .3 | .1 | (4) |
| **Agricultural Conservation Program Service:** | | | | | | | | | | |
| Agricultural conservation program | 260.0 | 251.7 | 212.0 | 191.7 | 214.5 | 227.5 | 212.0 | 235.0 | 241.5 | 242.6 |
| Emergency conservation measures | 31.0 | | 15.0 | | | 4.0 | 20.0 | (5) | | |
| **Agricultural Marketing Service:** | | | | | | | | | | |
| Marketing research and service: | | | | | | | | | | |
| Marketing research and agricultural estimates | 8.1 | 8.2 | 8.8 | 10.4 | 11.9 | 13.4 | 14.6 | 15.4 | 15.4 | 16.6 |
| Marketing services | 10.7 | 10.8 | 11.8 | 11.8 | 12.6 | 13.0 | 15.9 | 22.6 | 26.1 | 26.6 |
| Total, marketing research and service | 18.8 | 19.1 | 20.6 | 22.2 | 24.5 | 26.5 | 30.5 | 38.0 | 41.5 | 43.1 |
| Payments to States | .5 | .5 | .6 | .9 | 1.0 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 |
| School lunch program | 83.4 | 83.4 | 83.2 | 83.2 | 83.2 | 100.0 | 100.0 | [6] 110.0 | [6] 110.0 | [6] 110.0 |
| **Foreign Agricultural Service:** [7] | | | | | | | | | | |
| Salaries and expenses | .7 | .8 | 2.4 | 2.5 | 3.4 | 3.8 | 4.1 | [3] 4.2 | [3] 3.5 | [3] 4.6 |
| Salaries and expenses (special foreign currency program) | | | | | [3] 11.4 | [3] 3.9 | [3] 7.2 | [3] 5.5 | [3] 5.8 | 14.6 |

See footnotes at end of table, p. 46.

TABLE 4.—*Appropriations and REA and FHA loan authorizations, fiscal years 1952 through 1960, and budget estimates, 1961*—Continued

[Millions of dollars]

| | 1952 | 1953 [1] | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | Budget, estimates, 1961 |
|---|---|---|---|---|---|---|---|---|---|---|
| ANNUAL APPROPRIATIONS FOR REGULAR ACTIVITIES—continued | | | | | | | | | | |
| Commodity Exchange Authority | 0.7 | 0.7 | 0.7 | 0.7 | 0.8 | 0.8 | 0.9 | 0.9 | 0.9 | 0.9 |
| Commodity Stabilization Service: | | | | | | | | | | |
| Acreage allotments and marketing quotas | 10.0 | 10.0 | 43.3 | 41.0 | 38.9 | 41.0 | 40.8 | 41.7 | 39.1 | 40.1 |
| Sugar Act program | 70.0 | 65.0 | 59.6 | 59.6 | 59.6 | 67.6 | 67.7 | 76.0 | 71.5 | 74.5 |
| Conservation reserve program | | | | | | | [9] 162.9 | [9] 200.0 | [9] 335.0 | 361.8 |
| Acreage reserve program | | | | | | | 600.3 | 609.5 | | |
| Federal Crop Insurance Corporation (operating and administrative expenses) [10] | 7.9 | 8.5 | 7.5 | 6.0 | 6.2 | 6.2 | 6.4 | 6.4 | 6.4 | 6.4 |
| Rural Electrification Administration (salaries and expenses) | 8.3 | 8.3 | 7.6 | 7.4 | 8.1 | 8.6 | 9.1 | 9.6 | 9.6 | 9.6 |
| Farmers' Home Administration (salaries and expenses) | 29.4 | 29.3 | 26.7 | 23.9 | 26.3 | 27.8 | 30.2 | 31.2 | 30.7 | 31.5 |
| Office of the General Counsel | 2.6 | 2.5 | 2.6 | 2.4 | 2.7 | 2.8 | 3.0 | 3.2 | 3.2 | 3.4 |
| Office of the Secretary | 2.3 | 2.4 | 2.3 | 2.3 | 2.5 | 2.5 | 2.8 | 2.9 | 2.9 | 2.9 |
| Office of Information | 1.3 | 1.3 | 1.3 | 1.2 | 1.3 | 1.3 | 1.4 | 1.4 | 1.4 | 1.5 |
| Library | .6 | .6 | .6 | .6 | .6 | .7 | .7 | .8 | .8 | .9 |
| Forest Service: | | | | | | | | | | |
| Forest protection and utilization | 62.2 | 60.3 | 63.3 | 62.5 | 74.5 | 84.2 | 99.8 | 117.2 | 108.7 | 116.8 |
| Forest roads and trails | 13.0 | 16.0 | 14.4 | 22.5 | 24.0 | 24.0 | 24.3 | 26.0 | 28.0 | 30.0 |
| Access roads | | | | | | | | | 1.0 | 1.0 |
| Assistance to States for tree planting | | | | | | | .5 | | | |
| Acquisition of lands for national forests | .3 | .3 | | | [4] | .6 | .6 | .1 | .1 | 1.0 |
| Cooperative range improvements | .7 | .3 | .5 | .4 | .7 | .7 | .7 | .7 | .7 | .7 |
| Smoke jumper facilities | .7 | | | | | | | | | |
| Disaster loan revolving fund (assistance to farmers and stockmen in disaster areas) | 30.0 | | 130.0 | | | | | | | |
| Salaries and expenses, defense production activities | 1.5 | 2.0 | | | | | | | | |
| Deduct amounts included in above figures transferred for pay act and other costs | | | | [11] −2.6 | [11] −1.0 | [11] −4.0 | [11] −9.9 | [11] −28.9 | | |
| Total, annual appropriations for regular activities | 827.5 | 742.2 | 881.4 | 738.6 | 820.8 | 928.4 | 1,740.5 | 1,867.8 | 1,424.2 | 1,491.1 |

[1] Represents net amounts available after reductions under secs. 411 and 412 of the 1953 Agricultural Appropriation Act.

[2] In addition, Act authorizes reappropriation of $1,000,000 of 1959 funds to provide for additional labor to be employed to strengthen the work at research installations in the field.

[3] Represents allocations by the Budget Bureau of foreign currencies accruing from sales of agricultural commodities under title I of the Agricultural Trade Development and Assistance Act of 1954, as amended (Public Law 480).

[4] Prior-year balances available.

[5] The supplemental Appropriation Act, 1959, provided that the unexpended balance ($18,077,749) as of June 30, 1958, of the appropriations previously made for this purpose remain available until expended.

[6] In addition, the appropriation acts and budget estimate provide that the following amounts shall be transferred from sec. 32 funds for purchase of agricultural commodities for distribution to schools: 1959, $35,000,000; 1960, $43,657,248; 1961 budget estimate $40,000,000.

[7] Figures for fiscal years 1952 and 1953 do not include comparable amounts for the expenses related to agricultural attachés, since data is not available with respect to the portion of State Department funds used for this purpose during these years.

[8] 1961 budget estimate proposes that $2,539,000 of sec. 32 funds shall be transferred to and merged with this appropriation. Comparable amounts of $2,493,000 were available in each of the fiscal years 1959 and 1960.

[9] In addition, provisions limiting payments to producers in any calendar year are as follows: $325,000,000 in 1958 act, and $375,000,000 in the 1959 and 1960 acts.

[10] In addition, premium income available for operating and administrative expenses is indicated below under "Corporations."

[11] Transferred from appropriations previously made to the Department and shown as deductions to avoid duplications in the totals for these years.



TABLE 4.—*Appropriations and REA and FHA loan authorizations, fiscal years 1952 through 1960, and budget estimates, 1961*—Continued

[Millions of dollars]

remain available until expended.

[4] In addition, the appropriation acts and budget estimate provide that the following amounts shall be transferred from sec. 32 funds for purchase of agricultural commodities

[10] In addition, premium income available for operating and administrative expenses is indicated below under "Corporations."

[11] Transferred from appropriations previously made to the Department and shown as deductions to avoid duplications in the totals for these years.

TABLE 4.—*Appropriations and REA and FHA loan authorizations, fiscal years 1952 through 1960, and budget estimates, 1961*—Continued

[Millions of dollars]

| | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | Budget estimates, 1961 |
|---|---|---|---|---|---|---|---|---|---|---|
| CORPORATIONS | | | | | | | | | | |
| Federal Crop Insurance Corporation: | | | | | | | | | | |
| Operating expenses payable from premium income | | | | | (1.5) | (2.0) | (2.0) | (2.3) | (2.3) | (2.8) |
| Subscription to capital stock | | | | | | 13.0 | | | | |
| Commodity Credit Corporation: | | | | | | | | | | |
| Restoration of capital impairment: | | | | | | | | | | |
| Cancellation of notes | 421.5 | | 96.2 | 550.2 | | | | | | |
| Appropriations | | 109.4 | | | 1.6 | 929.3 | 1,239.8 | 1,760.4 | [1] 1,435.4 | [2] 1,325.0 |
| Corporate administrative expense limitation | (16.5) | (16.5) | (20.0) | (25.3) | (30.8) | (33.0) | (35.4) | (39.6) | [3] (42.8) | (48.4) |
| Reimbursement for special activities—to repay Commodity Credit Corporation for authorized activities financed from CCC funds: | | | | | | | | | | |
| For special commodity disposal programs: | | | | | | | | | | |
| International Wheat Agreement: | | | | | | | | | | |
| Cancellation of notes | | 182.2 | 171.7 | 129.6 | | | | | | |
| Appropriations | 76.8 | | | | 57.4 | 101.1 | 182.9 | 80.8 | 63.9 | 49.0 |
| Emergency famine relief to friendly peoples | | | | | 9.5 | 88.6 | 220.2 | 119.3 | 104.5 | 115.0 |
| Sales of surplus agricultural commodities for foreign currencies (Public Law 480, approved July 10, 1954) | | | | | | 67.5 | 1,927.8 | 1,033.5 | 968.0 | 881.0 |
| Transfer of bartered materials to supplemental stockpile | | | | | | | 218.9 | 82.3 | 129.0 | 423.0 |
| Transfer of hay and pasture seeds | | | | | | .2 | | | | |
| Emergency feed assistance in disaster areas | | | | | 42.1 | | | | | |
| Transfer of wheat to Pakistan | | | | | 69.4 | | | | | |
| For advances for eradication of foot-and-mouth disease and vesicular exanthema in swine: | | | | | | | | | | |
| Cancellation of notes | 32.7 | 11.2 | 7.1 | 2.1 | | | | | | |
| Appropriations | | | | | 5.8 | 1.3 | 3.2 | 1.3 | 1.1 | |
| For advances for eradication of brucellosis in cattle | | | | | | 11.8 | 34.3 | 18.1 | | |
| For advances for costs incurred for inspecting and grading tobacco and classing cotton | | | .8 | .4 | | .4 | 1.2 | 1.5 | 1.6 | .7 |
| Soil bank programs | | | | | | | [4] 567.5 | | | |
| Total, reimbursement to Commodity Credit Corporation for special activities | 109.5 | 193.4 | 179.6 | 132.1 | 184.2 | 270.8 | 3,156.2 | 1,336.8 | 1,268.1 | 1,468.7 |
| Total, corporations | 531.0 | 302.8 | 275.8 | 682.2 | 185.8 | 1,213.1 | 4,396.0 | 3,097.2 | 2,703.5 | 2,793.7 |

See footnotes at end of table, p. 49.

TABLE 4.—*Appropriations and REA and FHA loan authorizations, fiscal years 1952 through 1960, and budget estimates, 1961*—Continued

[Millions of dollars]

| | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | Budget estimates, 1961 |
|---|---|---|---|---|---|---|---|---|---|---|
| LOAN AUTHORIZATIONS | | | | | | | | | | |
| Rural Electrification Administration: | | | | | | | | | | |
| Electrification loans | 100.0 | [5] 50.0 | [6] 173.0 | [7] 170.0 | [8] 160.0 | [9] 414.0 | [10] 179.0 | [11] 317.0 | [12] 136.0 | [13] 110.0 |
| Telephone loans | [14] 25.2 | [15] 42.5 | 67.5 | [16] 75.0 | [17] 75.0 | [18] 100.0 | [19] 60.0 | [20] 92.5 | [21] 104.0 | [22] 80.0 |
| Farmers Home Administration, farm operating, farm ownership, soil and water conservation, and farm housing loans | 153.0 | 164.0 | 182.0 | 153.0 | 173.0 | [23] 685.5 | 209.5 | [24] 221.5 | [25] 206.0 | 177.0 |
| Total loan authorizations | 278.2 | 256.5 | 422.5 | 398.0 | 408.0 | 1,199.5 | 448.5 | 631.0 | 446.0 | 367.0 |
| PERMANENT APPROPRIATIONS | | | | | | | | | | |
| General fund appropriations: | | | | | | | | | | |
| Removal of surplus agricultural commodities (30 percent of customs receipts) | 158.9 | 181.0 | 172.4 | 180.1 | 166.8 | 200.0 | 220.9 | 235.9 | 251.4 | 318.0 |
| National Wool Act, agriculture | | | | | 0.2 | 2.0 | 29.7 | 24.5 | 50.1 | 51.0 |
| Payments to school funds, Arizona and New Mexico, national forest receipts | .1 | .1 | .1 | .1 | .1 | .1 | .1 | .1 | .1 | .1 |
| Deduct amounts included in above figures transferred for pay act costs | | | | [26] −0.2 | | | | | | |
| Total | 159.0 | 181.2 | 172.5 | 179.9 | 167.1 | 202.1 | 250.7 | 260.5 | 301.6 | 369.1 |
| Appropriations from special sources: | | | | | | | | | | |
| Perishable Agricultural Commodities Act fund (special receipt fund) | .4 | .4 | .4 | .4 | .4 | .5 | .7 | .7 | .7 | .7 |
| Roads and trails for States, national forest receipts | 5.6 | 7.0 | 7.5 | 6.6 | 7.8 | 11.4 | 10.8 | 8.9 | 11.9 | 13.6 |
| Expenses, brush disposal, Forest Service (special receipt fund) | 1.8 | 2.5 | 2.9 | 3.9 | 3.4 | 2.9 | 3.8 | 5.8 | 6.5 | 6.5 |
| Forest fire prevention | | | 0.1 | | | | | | | |
| Restoration of forest lands and improvements | | | | | | | | | .1 | .1 |
| Payments due counties, submarginal land program, Farm Tenant Act (receipt fund) | .3 | .4 | .5 | .4 | .5 | .5 | .6 | .5 | .5 | .5 |
| Payments to States and territories from the national forest receipts | 14.0 | 17.4 | 18.7 | 16.4 | 19.4 | 28.6 | 27.0 | 22.3 | 29.8 | 34.2 |
| Total, permanent appropriations | 181.1 | 208.9 | 202.6 | 207.7 | 198.7 | 246.0 | 293.5 | 298.6 | 351.1 | 424.8 |

[1] In addition, a 1960 supplemental is anticipated in the amount of $675,000,000:

[15] Includes $10,000,000 reserve authorization used in fiscal year 1953, and $7,500,000 additional authorization included in the Third Supplemental Appropriation Act, 1953.

[1] In addition, a 1960 supplemental is anticipated in the amount of $675,000,000: $100,000,000 to complete restoration of 1958 realized losses and $575,000,000 for partial restoration of 1959 losses.

[2] Consists of $632,000,994 to complete restoration of 1959 realized losses and $692,999,006 for partial restoration of 1960 realized losses.

[3] Includes anticipated supplemental estimate of $800,000 to meet an estimated increase in the volume of price-support activities.

[4] Includes $78,000,000 authorized transfer from the 1958 appropriation for "Acreage reserve program."

[5] In addition, Act provided a reserve authorization of $50,000,000. Including the carryover of funds from prior years, electrification loans amounting to $164,972,662 were made in fiscal year 1953.

[6] Includes $38,000,000 of a reserve authorization of $45,000,000 which was utilized. Including the carryover of funds from prior years, electrification loans amounting to $167,104,000 were made in fiscal year 1954.

[7] Includes contingency authorization of $35,000,000 utilized during fiscal year 1955. Including the carryover of funds from prior years, electrification loans amounting to $164,615,874 were made in fiscal year 1955.

[8] In addition, Act provided a reserve authorization of $100,000,000. Including the carryover of funds from prior years, electrification loans amounting to $192,719,356 were made in fiscal year 1956.

[9] Including the carryover of funds from prior years, electrification loans amounting to $300,461,514 were made in fiscal year 1957.

[10] Includes a reserve authorization of $20,000,000. Including the carryover of funds from prior years, loans totaling $241,636,869 were made in fiscal year 1958.

[11] In addition, a reserve authorization of $25,000,000 and balances from prior years were available. Loans totaling $177,292,100 were made in fiscal year 1959.

[12] In addition, a reserve authorization of $25,000,000 is available. Including the carryover of funds from prior years, it is estimated that loans totaling $245,000,000 will be made in fiscal year 1960.

[13] Including the carryover of funds from prior years, it is estimated that loans totaling $220,000,000 will be made in fiscal year 1961.

[14] Consists of $9,000,000 borrowing authorization for rural telephone loans and $16,236,718 borrowed under the reserve authorization of $25,000,000 provided in 1952 Act.

[15] Includes $10,000,000 reserve authorization used in fiscal year 1953, and $7,500,000 additional authorization included in the Third Supplemental Appropriation Act, 1953. Including the carryover of funds from prior years, telephone loans amounting to $35,883,500 were made in fiscal year 1953.

[16] Including the carryover of funds from prior years, telephone loans amounting to $52,744,000 were made in fiscal year 1955.

[17] Including the carryover of funds from prior years, telephone loans amounting to $80,980,000 were made in fiscal year 1956.

[18] Includes reserve authorization of $20,000,000 for use to the extent necessary for the expeditious and orderly development of the rural telephone program. Including the carryover of funds from prior years, telephone loans amounting to $81,729,000 were made in fiscal year 1957.

[19] Includes a reserve authorization of $10,000,000. Including the carryover of funds from prior years, loans totaling $89,238,000 were made in fiscal year 1958.

[20] Includes use of the reserve authorization of $25,000,000. Including the carryover of funds from prior years, loans totaling $98,923,000 were made in fiscal year 1959.

[21] Includes anticipated use of the reserve authorization of $25,000,000. Including the carryover of funds from prior years, it is estimated that loans totaling $105,000,000 will be made in fiscal year 1960.

[22] Including the carryover of funds from prior years, it is estimated that loans totaling $81,000,000 will be made in fiscal year 1961.

[23] Includes $450,000,000 authorized in Public Law 1020, approved Aug. 7, 1956, for farm housing loans for use during fiscal years 1957 to 1961, inclusive, and $15,000,000 under farm operating loans for use to extent necessary for the expeditious and orderly conduct of the loan program.

[24] In addition, contingency fund of $20,000,000 is available, of which not to exceed $5,000,000 may be used for farm ownership loans and the balance for farm operating loans.

[25] In addition, contingency fund of $20,000,000 is available, of which not to exceed $5,000,000 may be used for farm ownership loans and the balance for farm operating loans.

[26] Transferred from appropriations previously made to the Department and shown as deductions to avoid duplications in the totals for these years.

NOTE.—Detail may not add to totals shown due to rounding.

TABLE 5.—*Budget expenditures from appropriations, REA and FHA loan authorizations, and corporation and other revolving funds, fiscal years 1952 through 1959, and estimated 1960 and 1961*

[NOTE.—Amounts reported are based on expenditures for the Department of Agriculture as shown in the budget. Figures are adjusted for comparability with the appropriation structure in the 1961 budget.]

[Millions of dollars]

| | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | Estimated, 1960 | Estimated, 1961 |
|---|---|---|---|---|---|---|---|---|---|---|
| Annual appropriations for regular activities: | | | | | | | | | | |
| Agricultural Research Service: | | | | | | | | | | |
| Salaries and expenses | 70.1 | 67.8 | 71.9 | 80.6 | 98.7 | 108.9 | 119.6 | 139.6 | 132.0 | 139.8 |
| Salaries and expenses (special foreign currency program)[1] | | | | | | | | | | 8.0 |
| Construction of facilities | | | | | | | | | | .1 |
| State experiment stations (primarily payments to States) | 12.7 | 12.7 | 13.7 | 19.4 | 24.6 | 29.3 | 30.7 | 31.8 | 31.7 | 32.8 |
| Animal Disease Laboratory facilities (Ames, Iowa) | | | | | | | .4 | 3.6 | 8.3 | 4.1 |
| Research facilities (Plum Island) | | .1 | .5 | 3.0 | 4.9 | 1.1 | .6 | .1 | .1 | |
| Extension Service (principally payments to States) | 33.4 | 33.4 | 34.6 | 42.1 | 47.6 | 51.9 | 58.8 | 63.2 | 64.1 | 67.4 |
| Farmer Cooperative Service | .4 | .4 | .4 | .4 | .4 | .5 | .6 | .6 | .6 | .6 |
| Soil Conservation Service: | | | | | | | | | | |
| Conservation operations | 56.0 | 59.5 | 56.6 | 58.9 | 63.2 | 65.9 | 71.7 | 84.4 | 80.3 | 81.3 |
| Watershed protection | | | 2.1 | 6.2 | 9.6 | 11.3 | 13.8 | 19.6 | 26.0 | 31.0 |
| Flood prevention | 7.8 | 6.2 | 8.4 | 8.7 | 9.8 | 10.6 | 12.1 | 15.6 | 17.5 | 15.5 |
| Great Plains conservation program | | | | | | | 1.6 | 5.4 | 6.5 | 9.5 |
| Water conservation and utilization projects | .4 | .4 | .4 | .3 | .4 | .3 | .4 | .3 | .1 | .1 |
| Agricultural Conservation Program Service: | | | | | | | | | | |
| Agricultural conservation program | 261.2 | 272.7 | 171.3 | 235.1 | 215.2 | 262.0 | 213.8 | 239.3 | 243.0 | 245.0 |
| Agricultural Marketing Service: | | | | | | | | | | |
| Marketing research and service | 18.7 | 19.1 | 19.3 | 21.3 | 24.4 | 25.2 | 28.2 | 39.0 | 39.7 | 42.8 |
| Payments to States | .5 | .6 | .6 | 1.0 | 1.0 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 |
| School lunch program | 83.6 | 82.8 | 83.5 | 83.1 | 82.7 | 99.2 | 100.0 | 143.8 | 153.7 | 150.5 |
| Foreign Agricultural Service: | | | | | | | | | | |
| Salaries and expenses[2] | .8 | .8 | 3.0 | 3.0 | 5.2 | 5.3 | 6.0 | 6.6 | 6.3 | 6.4 |
| Salaries and expenses (special foreign currency program)[1] | | | | | | | | | | 10.6 |
| Commodity Exchange Authority | .6 | .7 | .7 | .7 | .8 | .8 | .8 | .9 | .9 | .9 |
| Commodity Stabilization Service: | | | | | | | | | | |
| Acreage allotments and marketing quotas | 10.0 | 12.7 | 41.2 | 39.6 | 39.0 | 40.3 | 40.6 | 41.8 | 40.8 | 40.2 |
| Sugar Act program | 60.3 | 62.6 | 66.5 | 69.7 | 65.4 | 67.0 | 69.6 | 67.3 | 74.2 | 78.4 |
| Conservation reserve program | | | | | .2 | 37.2 | 112.7 | 175.1 | 364.8 | 393.8 |
| Acreage reserve program | | | | | 3.6 | 343.5 | 620.0 | 672.6 | 5.5 | |
| Federal Crop Insurance Corporation (operating and administrative expenses) | 6.0 | 6.5 | 5.4 | 5.1 | 6.7 | 6.2 | 6.4 | 6.4 | 7.4 | 6.3 |
| Rural Electrification Administration (salaries and expenses) | 8.3 | 7.9 | 7.3 | 7.5 | 8.1 | 8.3 | 8.7 | 9.9 | 9.4 | 9.6 |
| Farmers Home Administration (salaries and expenses) | 29.2 | 29.1 | 26.6 | 24.1 | 26.5 | 27.5 | 28.7 | 32.3 | 30.5 | 31.5 |
| Office of the General Counsel | 2.3 | 2.3 | 2.1 | 2.1 | 2.2 | 2.7 | 2.9 | 3.3 | 3.2 | 3.4 |
| Office of the Secretary | 2.2 | 2.3 | 2.2 | 2.2 | 2.4 | 2.4 | 2.6 | 2.9 | 2.9 | 2.9 |
| Office of Information | .9 | 1.2 | 1.0 | 1.5 | 1.1 | 1.6 | 1.4 | 1.5 | 1.5 | 1.5 |
| Library | .6 | .6 | .6 | .6 | .7 | .7 | .7 | .8 | .8 | .9 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Office of Information | .9 | 1.2 | 1.0 | 1.5 | 1.1 | 1.6 | 1.4 | 1.5 | 1.5 | 1.5 |
| Library | .6 | .6 | .6 | .6 | .7 | .7 | .7 | .8 | .8 | .9 |
| Forest Service: | | | | | | | | | | |
| Forest protection and utilization | 62.1 | 59.2 | 63.7 | 63.6 | 74.2 | 83.3 | 95.7 | 116.8 | 128.7 | 119.7 |
| Forest roads and trails | 13.6 | 12.5 | 16.4 | 18.1 | 24.1 | 26.5 | 20.9 | 35.5 | 30.2 | 30.0 |
| Access roads | | | | | | | | | 1.0 | 1.0 |
| Assistance to States for tree planting | | | | | | | .1 | .4 | | |
| Acquisition of lands for national forests | .1 | | | .1 | | .2 | .3 | .6 | .2 | .8 |
| Smoke jumper facilities | | .1 | .5 | | | | | | | |
| Salaries and expenses, defense production activities | .7 | 2.5 | .2 | | | | | | | |
| Total, annual appropriations for regular activities | 742.5 | 756.7 | 700.7 | 795.0 | 842.7 | 1,321.0 | 1,671.6 | 1,961.9 | 1,513.2 | 1,567.5 |
| Corporation and other revolving funds (net): [3] | | | | | | | | | | |
| Commodity Credit Corporation: | | | | | | | | | | |
| Price support, supply, and related programs [1] | −242.3 | 1,831.3 | 1,334.1 | 3,074.9 | 2,893.8 | 1,086.8 | 986.8 | 2,774.9 | 1,827.7 | 2,279.2 |
| Special milk program | | | | 22.4 | 45.6 | 57.0 | 66.7 | 74.7 | 79.9 | 83.7 |
| Special activities financed from CCC funds: | | | | | | | | | | |
| Special activities for which appropriations are provided to reimburse CCC: | | | | | | | | | | |
| International Wheat Agreement | 171.3 | 130.8 | 59.0 | 99.7 | 92.3 | 90.1 | 82.4 | 48.3 | 49.0 | 68.1 |
| Emergency famine relief to friendly peoples | | | 74.4 | 91.4 | 93.6 | 124.9 | 121.4 | 97.9 | 115.0 | 120.0 |
| Sales of surplus agricultural commodities for foreign currencies | | | | 129.5 | 614.7 | 1,337.9 | 1,073.2 | 1,022.0 | 1,055.1 | 1,172.2 |
| Transfer of bartered materials to supplemental stockpile | | | | | | 217.3 | 83.9 | 314.7 | 237.2 | 126.7 |
| Grading and classing activities | .8 | | | .4 | .2 | 1.2 | 1.4 | .5 | .7 | .7 |
| Emergency feed program | | | 42.2 | −.3 | | | | | | |
| Transfer of hay and pasture seed to Federal land-administering agencies | | | | .1 | | | | | | |
| Other special activities financed from CCC funds: | | | | | | | | | | |
| Loans to Secretary of Agriculture for conservation purposes | 12.3 | −21.6 | 11.7 | −18.7 | 6.5 | −13.0 | 21.5 | 7.0 | 1.3 | −11.6 |
| Military housing (Public Law 161, 84th Cong., barter and exchange) | | | | | | .5 | 11.1 | 31.5 | 5.5 | −3.0 |
| Transfer of long-staple cotton from national stockpile for sale by Commodity Credit Corporation | | | | | | | −.5 | .4 | .1 | |
| National Wool Act | | | | .2 | 2.0 | 61.3 | 57.2 | 20.0 | 93.5 | 70.3 |
| Federal Crop Insurance Corporation (capital and insurance fund) | 1.5 | −1.1 | 5.9 | 7.2 | 3.2 | 7.4 | −4.9 | −14.5 | −6.8 | 1.0 |
| Disaster loans and other assistance revolving fund | 12.9 | 15.5 | 96.5 | 10.7 | 2.8 | 9.7 | −4.7 | −31.1 | −6.7 | 4.6 |
| Farm tenant mortgage insurance fund | −.2 | −.2 | −.1 | | 1.4 | 6.9 | −5.1 | 26.2 | 3.1 | 7.7 |
| Other revolving and management funds | .7 | −1.9 | −6.9 | −4.1 | 1.9 | −5.9 | .1 | −3.1 | 3.5 | |
| Total, corporation and other revolving funds (net) | −43.0 | 1,952.8 | 1,616.7 | 3,413.6 | 3,757.9 | 2,982.0 | 2,490.6 | 4,369.6 | 3,458.2 | 3,919.8 |
| Loan authorizations: | | | | | | | | | | |
| Rural Electrification Administration, rural electrification and rural telephone loans | 235.2 | 231.5 | 210.0 | 196.5 | 208.7 | 258.9 | 288.2 | 305.0 | 325.0 | 345.0 |
| Farmers Home Administration, farm operating, farm ownership, soil and water conservation, and farm housing loans | 160.2 | 166.4 | 180.8 | 145.4 | 158.4 | 231.9 | 253.3 | 279.0 | 251.5 | 203.3 |
| Total, loan authorizations | 395.4 | 397.9 | 390.7 | 341.9 | 367.1 | 490.8 | 541.5 | 584.0 | 576.5 | 548.3 |

See footnotes at end of table, p. 52.

TABLE 5.—*Budget expenditures from appropriations, REA and FHA loan authorizations, and corporation and other revolving funds, fiscal years 1952 through 1959, and estimated 1960 and 1961*—Continued

[Millions of dollars]

| | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | Estimated, 1960 | Estimated, 1961 |
|---|---|---|---|---|---|---|---|---|---|---|
| Permanent appropriations: | | | | | | | | | | |
| General fund appropriations: | | | | | | | | | | |
| Payments to school funds, Arizona and New Mexico | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Removal of surplus agricultural commodities (30 percent of customs receipts) | 37.5 | 82.2 | 176.9 | 57.7 | 177.5 | 169.3 | 123.4 | 138.5 | 110.0 | 110.0 |
| Appropriations from special sources: | | | | | | | | | | |
| Expenses, brush disposal | .3 | 1.8 | 2.5 | 2.8 | 3.9 | 3.4 | 4.3 | 4.9 | 5.0 | 5.8 |
| Payments to States and territories from the national forests fund | 13.9 | 17.4 | 18.6 | 16.4 | 19.4 | 28.5 | 27.0 | 22.3 | 29.8 | 34.2 |
| Roads and trails for States, national forests fund | 3.4 | 7.3 | 9.8 | 8.0 | 7.3 | 9.7 | 15.4 | 8.9 | 11.9 | 13.6 |
| Payments due counties, submarginal land program, Farm Tenant Act | .6 | .4 | .5 | .4 | .5 | .5 | .6 | .5 | .5 | .5 |
| Restoration of forest lands and improvements | | | | | | | | | .1 | .1 |
| Perishable Agricultural Commodities Act fund | .4 | .4 | .4 | .4 | .5 | .5 | .6 | .7 | .7 | .8 |
| Total, permanent appropriations | 56.2 | 109.7 | 208.9 | 85.9 | 209.1 | 212.1 | 171.3 | 175.9 | 158.1 | 165.2 |
| Total, net budget expenditures | 1,151.2 | 3,217.2 | 2,917.1 | 4,636.5 | 5,176.8 | 5,005.9 | 4,874.9 | 7,091.4 | 5,706.0 | 6,200.8 |

[1] Exclusive of U.S. dollar equivalent of foreign currencies expended as follows:

| | Agricultural Research Service | Foreign Agricultural Service | Commodity Credit Corporation |
|---|---|---|---|
| 1956 | | 0.6 | |
| 1957 | | 2.0 | |
| 1958 | | 3.6 | |
| 1959 | 0.2 | 4.6 | |
| 1960 (estimated) | 2.2 | 10.0 | 0.1 |

[2] Figures for fiscal years 1952 and 1953 do not include comparable amounts for the expenses related to agricultural attaches, since data is not available with respect to the portion of State Department funds used for this purpose during these years.

[3] Minus figures indicate excess of collections over expenditures.

NOTE.—Details may not add to totals shown due to rounding.



TABLE 6.—*Receipts to U.S. Treasury arising from Department of Agriculture activities, fiscal year 1959 and estimated fiscal years 1960 and 1961*

TABLE 6.—*Receipts to U.S. Treasury arising from Department of Agriculture activities, fiscal year 1959 and estimated fiscal years 1960 and 1961*

[Thousands]

| Classification and source | Fiscal year 1959, actual | | | | Fiscal year 1960, estimated | | | | Fiscal year 1961, estimated | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | General [1] | Special [2] | Trust [3] | Total | General [1] | Special [2] | Trust [3] | Total | General [1] | Special [2] | Trust [3] | Total |
| Collection on loans: | | | | | | | | | | | | |
| Farmers Home Administration loans: | | | | | | | | | | | | |
| Collections of principal: | | | | | | | | | | | | |
| Farm ownership loans (direct) | $18,859 | | | $18,859 | $19,650 | | | $19,650 | $20,400 | | | $20,400 |
| Farm operating loans | 175,862 | | | 175,862 | 173,885 | | | 173,885 | 185,100 | | | 185,100 |
| Soil and water conservation loans (direct) | 3,492 | | | 3,492 | 3,700 | | | 3,700 | 3,700 | | | 3,700 |
| Farm housing loans | 11,050 | | | 11,050 | 15,100 | | | 15,100 | 17,800 | | | 17,800 |
| Total, principal | 209,263 | | | 209,263 | 212,335 | | | 212,335 | 227,000 | | | 227,000 |
| Collection of interest: | | | | | | | | | | | | |
| Farm ownership loans (direct) | 9,834 | | | 9,834 | 10,570 | | | 10,570 | 10,970 | | | 10,970 |
| Farm operating loans | 17,140 | | | 17,140 | 17,447 | | | 17,447 | 17,246 | | | 17,246 |
| Soil and water conservation loans (direct) | 870 | | | 870 | 900 | | | 900 | 900 | | | 900 |
| Farm housing loans | 4,580 | | | 4,580 | 6,100 | | | 6,100 | 6,800 | | | 6,800 |
| Total, interest | 32,424 | | | 32,424 | 35,017 | | | 35,017 | 35,916 | | | 35,916 |
| Total, Farmers Home Administration loans | 241,687 | | | 241,687 | 247,352 | | | 247,352 | 262,916 | | | 262,916 |
| Rural Electrification Administration loans: | | | | | | | | | | | | |
| Collections of principal: | | | | | | | | | | | | |
| Electrification loans | 99,872 | | | 99,872 | 104,350 | | | 104,350 | 109,575 | | | 109,575 |
| Telephone loans | 5,269 | | | 5,269 | 6,235 | | | 6,235 | 7,945 | | | 7,945 |
| Total, principal | 105,141 | | | 105,141 | 110,585 | | | 110,585 | 117,520 | | | 117,520 |
| Collections of interest: | | | | | | | | | | | | |
| Electrification loans | 45,038 | | | 45,038 | 52,940 | | | 52,940 | 60,200 | | | 60,200 |
| Telephone loans | 3,600 | | | 3,600 | 5,990 | | | 5,990 | 8,725 | | | 8,725 |
| Total, interest | 48,638 | | | 48,638 | 58,930 | | | 58,930 | 68,925 | | | 68,925 |
| Total, Rural Electrification Administration loans | 153,779 | | | 153,779 | 169,515 | | | 169,515 | 186,445 | | | 186,445 |
| Total, collection on loans | 395,466 | | | 395,466 | 416,867 | | | 416,867 | 449,361 | | | 449,361 |

See footnotes at end of table, p. 55.

TABLE 6.—*Receipts to U.S. Treasury arising from Department of Agriculture activities, fiscal year 1959 and estimated fiscal years 1960 and 1961*—Continued

[Thousands]

| Classification and source | Fiscal year 1959, actual | | | | Fiscal year 1960, estimated | | | | Fiscal year 1961, estimated | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | General [1] | Special [2] | Trust [3] | Total | General [1] | Special [2] | Trust [3] | Total | General [1] | Special [2] | Trust [3] | Total |
| Receipts from operations, and miscellaneous reimbursements and collections: | | | | | | | | | | | | |
| Business on the national forests—primarily timber sales and grazing fees | $76,079 | [4] $42,360 | ..... | $118,439 | $87,551 | [4] $48,576 | ..... | $136,127 | $90,091 | [4] $49,954 | ..... | $140,045 |
| Deposits by timber purchasers for brush disposal | ..... | 5,796 | ..... | 5,796 | ..... | 6,500 | ..... | 6,500 | ..... | 6,500 | ..... | 6,500 |
| Receipts from Tongass National Forest held pending determination of land ownership [5] | ..... | 382 | ..... | 382 | ..... | 423 | ..... | 423 | ..... | 455 | ..... | 455 |
| Receipts from Oregon and California controverted lands, held pending determination of land ownership | ..... | 3,327 | ..... | 3,327 | ..... | 4,000 | ..... | 4,000 | ..... | 4,000 | ..... | 4,000 |
| Use of lands held under title III of the Bankhead-Jones Farm Tenant Act | 1,439 | [6] 480 | ..... | 1,919 | 1,500 | [6] 500 | ..... | 2,000 | 1,500 | [6] 500 | ..... | 2,000 |
| Fees for licenses under the Perishable Agricultural Commodities, Produce Agency, and Export Apple and Pear Acts | ..... | 673 | ..... | 673 | ..... | 670 | ..... | 670 | ..... | 670 | ..... | 670 |
| Charges for testing, inspection, and grading services, principally collections under the Cotton Standards, Cotton Futures, and Grain Standards Acts | 2,006 | ..... | ..... | 2,006 | 1,192 | ..... | ..... | 1,192 | 1,192 | ..... | ..... | 1,192 |
| Sales of products not required in connection with the work of the Department, primarily loose cotton samples, long-staple cotton from national stockpile, livestock, and livestock products | 2,563 | ..... | ..... | 2,563 | 2,471 | ..... | ..... | 2,471 | 2,389 | ..... | ..... | 2,389 |
| Fines, penalties, and forfeitures, chiefly marketing quota penalties | 12,844 | ..... | ..... | 12,844 | 12,580 | ..... | ..... | 12,580 | 12,660 | ..... | ..... | 12,660 |
| Miscellaneous, chiefly recoveries and refunds | 915 | 27 | ..... | 942 | 858 | 145 | ..... | 1,003 | 800 | 120 | ..... | 920 |
| Total | 95,846 | 53,045 | ..... | 148,891 | 106,152 | 60,814 | ..... | 166,966 | 108,632 | 62,199 | ..... | 170,831 |
| Trust fund receipts: | | | | | | | | | | | | |
| Contributions from private cooperators for various activities on national and private forest lands | ..... | ..... | $17,407 | 17,407 | ..... | ..... | $18,500 | 18,500 | ..... | ..... | $19,000 | 19,000 |
| Fees received for inspection and grading of farm products upon application of interested parties | ..... | ..... | 17,289 | 17,289 | ..... | ..... | 17,414 | 17,414 | ..... | ..... | 17,703 | 17,703 |
| State rural rehabilitation funds | ..... | ..... | 9,207 | 9,207 | ..... | ..... | 7,893 | 7,893 | ..... | ..... | 6,262 | 6,262 |
| Receipts for miscellaneous special services | ..... | ..... | 1,120 | 1,120 | ..... | ..... | 1,041 | 1,041 | ..... | ..... | 965 | 965 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Receipts for miscellaneous special services | | | 1,120 | 1,120 | | | 1,041 | 1,041 | | | 965 | 965 |
| Total | | | 45,023 | 45,023 | | | 44,848 | 44,848 | | | 43,930 | 43,930 |
| Other receipts: | | | | | | | | | | | | |
| Interest paid to Treasury on CCC borrowings | 178,909 | | | 178,909 | 480,000 | | | 480,000 | 500,000 | | | 500,000 |
| Interest paid to Treasury on CCC capital stock | 2,500 | | | 2,500 | 2,875 | | | 2,875 | 3,000 | | | 3,000 |
| Total | 181,409 | | | 181,409 | 482,875 | | | 482,875 | 503,000 | | | 503,000 |
| Grand total | 672,721 | 53,045 | 45,023 | 770,789 | 1,005,894 | 60,814 | 44,848 | 1,111,556 | 1,060,993 | 62,199 | 43,930 | 1,167,122 |

[1] Revenue and nonrevenue receipts available to the Treasury for general expenditures of the Government.

[2] Revenue and nonrevenue receipts deposited in the Treasury for specific purposes, pursuant to various legislative authorizations.

[3] Receipts deposited in trust in the Treasury for expenditure by the Department, as trustee, for specified purposes.

[4] Represents the portion of the total receipts from national forests available for (1) 25 percent fund for payments to States for benefit of roads and schools, (2) 10 percent fund for construction and maintenance of roads and trails in States from which proceeds are derived, and (3) appropriations from forest receipts for acquisition of lands, cooperative range improvements, and special payments to Minnesota counties in which Superior National Forest lands are located.

[5] Amounts shown represent 65 percent of the receipts from the Tongass National Forest. The remaining 35 percent of these receipts are distributed to Alaska (25 percent) and to the fund for the construction and maintenance of roads and trails (10 percent) in accordance with Public Law 758, 84th Cong.

[6] For payment to counties in which such lands are located.

TABLE 7.—*Appropriations for research and education, fiscal years 1952 through 1960, and budget estimates, 1961* [1]

[Thousands of dollars]

| Agency or activity | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | Budget estimates 1961 | Increase (+) 1961 compared with 1960 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Health benefit costs on base for 1961 | Other | Total |
| Research: | | | | | | | | | | | | | |
| Agricultural Research Service (exclusive of State experiment stations, shown below) | 32 636 | 32, 922 | 33, 824 | 38, 585 | [2] 41, 951 | 53, 826 | 59, 533 | 62, 964 | 67, 722 | 69, 882 | +497 | +1, 663 | +2, 160 |
| Special foreign currency program | | | | | | | 400 | 7, 596 | 12, 057 | 15, 132 | | +3, 075 | +3, 075 |
| Farmer Cooperative Service | 277 | 278 | 265 | 265 | 278 | 380 | 404 | 427 | 425 | 445 | +3 | +17 | +20 |
| Forest Service | 6, 272 | 6, 254 | 6, 235 | 7, 296 | 8, 411 | 10, 174 | 12, 283 | 16, 545 | 14, 545 | 16, 332 | +91 | +1, 696 | +1, 787 |
| Agricultural Marketing Service | 4, 724 | 4, 835 | 4, 896 | 6, 133 | 7, 159 | 8, 207 | 8, 808 | 9, 068 | 8, 976 | 9, 536 | +56 | +503 | +559 |
| Foreign Agricultural Service | 135 | 138 | 152 | 180 | 186 | 347 | 379 | 393 | 396 | 396 | | | |
| Library | 186 | 187 | 172 | 185 | 194 | 216 | 236 | 245 | 269 | 295 | +3 | +23 | +26 |
| Deduct amounts included in above figures transferred for pay act costs | | | | −88 | | −950 | | | | | | | |
| Total, above items | 44, 230 | 44, 613 | 45, 545 | 52, 556 | 58, 179 | 72, 200 | 82, 043 | 97, 238 | 104, 390 | 112, 017 | +650 | +6, 977 | +7, 627 |
| State experiment stations: | | | | | | | | | | | | | |
| Payments to States and territories for experiment station research under the Hatch Act as amended by the act of Aug. 11, 1955, and under sec. 204(b) of the Agricultural Marketing Act of 1946 | 12, 670 | 12, 696 | 13, 722 | 19, 454 | 24, 754 | 29, 504 | 30, 354 | 31, 554 | 31, 554 | 32, 554 | | +1, 000 | +1, 000 |
| Penalty mail | | | | | | 250 | 250 | 250 | 250 | 250 | | | |
| Deduct amounts included in above figures transferred for pay act and other costs | | | | | | | −12 | | | | | | |
| Total, above items | 56, 901 | 57, 309 | 59, 266 | 72, 010 | 82, 933 | 101, 954 | 112, 634 | 129, 041 | 136, 194 | 144, 821 | +650 | +7, 977 | +8, 627 |
| Major research facilities for investigation of foot-and-mouth and other animal diseases (Plum Island and Ames, Iowa) | 10, 000 | | | | 250 | 16, 250 | | | | | | | |
| Total, research | 66, 901 | 57, 309 | 59, 266 | 72, 010 | 83, 183 | 118, 204 | 112, 634 | 129, 041 | 136, 194 | 144, 821 | +650 | +7, 977 | +8, 627 |
| Education, Extension Service, cooperative extension work, payments and expenses: | | | | | | | | | | | | | |
| Payments to States and Puerto Rico | 32, 101 | 32, 266 | 32, 256 | 39, 675 | 45, 475 | 49, 865 | 50, 715 | 53, 715 | 53, 715 | 56, 580 | | +2, 865 | +2, 865 |
| Retirement costs for extension agents | | | | | | | 5, 260 | 5, 479 | 5, 674 | 5, 961 | | +287 | +287 |
| Penalty mail | | | 1, 685 | 1, 943 | 1, 650 | 2, 164 | 2, 164 | 2, 491 | 2, 491 | 2, 491 | | | |
| Federal Extension Service | 1, 442 | 1, 326 | 1, 349 | 1, 921 | 1, 980 | 2, 000 | 2, 161 | 2, 251 | 2, 243 | 2, 393 | +13 | +137 | +150 |
| Deduct amounts included in above figures transferred for | | | | | | | | | | | | | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Federal Extension Service | 1,442 | 1,326 | 1,349 | 1,921 | 1,980 | 2,000 | 2,161 | 2,251 | 2,243 | 2,393 | +13 | +137 | +150 |
| Deduct amounts included in above figures transferred for pay act and other costs | | | | −782 | −985 | −764 | −64 | −217 | | | | | |
| Total, education | 33,543 | 33,592 | 35,290 | 42,757 | 48,120 | 53,265 | 60,236 | 63,719 | 64,123 | 67,425 | +13 | +3,289 | +3,302 |
| Total, research and education | 100,444 | 90,901 | 94,556 | 114,767 | 131,303 | 171,469 | 172,869 | 192,760 | 200,317 | 212,246 | +663 | +11,266 | +11,928 |
| Total, research and education, exclusive of major research facilities indicated above | 90,444 | 90,901 | 94,556 | 114,767 | 131,053 | 155,219 | 172,869 | 192,760 | 200,317 | 212,246 | +663 | +11,266 | +11,928 |

[1] Amounts adjusted for comparability with the appropriation structure in the 1961 budget.

[2] In addition, $62,000 was available for research by transfer from other appropriations under authority of sec. 702(b) of the Department of Agriculture Organic Act of 1944. Of this sum, $50,000 was for research on cantaloup disease and insect problems in the Southwest, and $12,000 for research to support the vesicular exanthema eradication program.

NOTE.—Details may not add to totals shown due to rounding.

*Average annual positions in appropriations and other funds, fiscal years 1959, 1960, and 1961*

[Based on 1961 budget estimates and adjusted for comparability with the 1961 appropriation structure. This table reflects the average annual positions under the appropriations and funds indicated, including those applicable to transfers, allocations or allotments to organizations other than the agency receiving the appropriation.]

| | 1959 | 1960 (estimated) | 1961 (estimated) | Increase(+) or decrease (−), 1961 compared with 1960 |
|---|---|---|---|---|
| Agricultural Research Service: | | | | |
| Salaries and expenses: | | | | |
| Research | 7,196 | 7,350 | 7,740 | +390 |
| Plant and animal disease and pest control | 5,345 | 5,072 | 4,891 | −181 |
| Meat inspection | 3,088 | 3,225 | 3,202 | −23 |
| Special fund | | 131 | | −131 |
| Total, salaries and expenses | 15,629 | 15,778 | 15,833 | +55 |
| Salaries and expenses (special foreign currency program) | 1 | 2 | 7 | +5 |
| State experiment stations | 67 | 65 | 68 | +3 |
| Diseases of animals and poultry: Eradication activities | 90 | | | |
| Animal disease laboratory facilities | 2 | | | |
| Total, annual appropriations | 15,789 | 15,845 | 15,908 | +63 |
| Other funds | 1,028 | 954 | 904 | −50 |
| Total | 16,817 | 16,799 | 16,812 | +13 |
| Extension Service: | | | | |
| Federal Extension Service | 233 | 232 | 241 | +9 |
| Other funds | 16 | 19 | 3 | −16 |
| Total | 249 | 251 | 244 | −7 |
| Farmer Cooperative Service: | | | | |
| Annual appropriation | 68 | 67 | 70 | +3 |
| Other funds | 46 | 46 | 46 | |
| Total | 114 | 113 | 116 | +3 |
| Soil Conservation Service: | | | | |
| Conservation operations | 12,712 | 12,976 | 13,032 | +56 |
| Watershed protection | 1,692 | 1,974 | 2,212 | +238 |
| Flood prevention | 1,218 | 1,301 | 1,125 | −176 |
| Great Plains conservation program | 327 | 321 | 322 | +1 |
| Water conservation and utilization projects | 36 | 11 | 9 | −2 |
| Total, annual appropriations | 15,985 | 16,583 | 16,700 | +117 |
| Other funds | 215 | 228 | 228 | |
| Total | 16,200 | 16,811 | 16,928 | +117 |
| Agricultural Conservation Program Service | 754 | 782 | 782 | |
| Agricultural Marketing Service: | | | | |
| Marketing research and service: | | | | |
| Marketing research and agricultural estimates | 1,727 | 1,783 | 1,921 | +138 |
| Marketing services | 3,120 | 3,940 | 3,986 | +46 |
| Total | 4,847 | 5,723 | 5,907 | +184 |
| School lunch program | 179 | 207 | 207 | |
| Total, annual appropriations | 5,026 | 5,930 | 6,114 | +184 |
| Other funds, including permanent appropriations | 3,245 | 3,316 | 3,390 | +74 |
| Total | 8,271 | 9,246 | 9,504 | +258 |
| Foreign Agricultural Service: | | | | |
| Salaries and expenses | 609 | 636 | 691 | +55 |
| Salaries and expenses (special foreign currency program) | 69 | 74 | 31 | −43 |
| Other funds | 103 | 113 | 24 | −89 |
| Total | 781 | 823 | 746 | −77 |
| Commodity Exchange Authority: Annual appropriation | 123 | 122 | 125 | +3 |

*Average annual positions in appropriations and other funds, fiscal years 1959, 1960, and 1961*—Continued

| | 1959 | 1960 (estimated) | 1961 (estimated) | Increase(+) or decrease (−), 1961 compared with 1960 |
|---|---|---|---|---|
| Commodity Stabilization Service: | | | | |
| Acreage allotments and marketing quotas | 786 | 862 | 862 | |
| Sugar Act program | 170 | 172 | 172 | |
| Conservation reserve | 370 | 436 | 398 | −38 |
| Acreage reserve | 504 | | | |
| Total, annual appropriations | 1,830 | 1,470 | 1,432 | −38 |
| Commodity Credit Corporation (corporate administrative expense limitation) | 4,829 | 5,869 | 5,830 | −39 |
| Other funds, including permanent appropriation | 311 | 510 | 509 | −1 |
| Total | 6,970 | 7,849 | 7,771 | −78 |
| Federal Crop Insurance Corporation: | | | | |
| Operating and administrative expenses | 697 | 760 | 803 | +43 |
| Capital and insurance fund | 72 | 128 | 142 | +14 |
| Other funds | | 1 | | −1 |
| Total | 769 | 889 | 945 | +56 |
| Rural Electrification Administration: | | | | |
| Annual appropriation | 1,018 | 1,001 | 994 | −7 |
| Other funds | 1 | 1 | | −1 |
| Total | 1,019 | 1,002 | 994 | −8 |
| Farmers' Home Administration: | | | | |
| Salaries and expenses | 4,991 | 4,863 | 4,901 | +38 |
| Other funds | 794 | 657 | 550 | −107 |
| Total | 5,785 | 5,520 | 5,451 | −69 |
| Office of the General Counsel: Annual appropriation | 394 | 385 | 403 | +18 |
| Office of the Secretary: | | | | |
| Annual appropriation | 318 | 322 | 322 | |
| Working capital fund | 266 | 267 | 267 | |
| Other funds | 2 | 2 | 2 | |
| Total | 586 | 591 | 591 | |
| Office of Information: | | | | |
| Annual appropriation | 119 | 119 | 122 | +3 |
| Other funds | 7 | 8 | 6 | −2 |
| Total | 126 | 127 | 128 | +1 |
| Library: | | | | |
| Annual appropriation | 116 | 127 | 134 | +7 |
| Other funds | 16 | 15 | 3 | −12 |
| Total | 132 | 142 | 137 | −5 |
| Forest Service: | | | | |
| Forest protection and utilization: | | | | |
| Forest land management | 10,868 | 10,781 | 11,358 | +577 |
| Forest research | 1,681 | 1,714 | 1,786 | +72 |
| State and private forestry cooperation | 154 | 144 | 144 | |
| Total | 12,703 | 12,639 | 13,288 | +649 |
| Forest roads and trails | 3,571 | 4,001 | 4,001 | |
| Acquisition of lands for national forests | 4 | 2 | 4 | +2 |
| Total, annual appropriations | 16,278 | 16,642 | 17,293 | +651 |
| Other funds, including permanent appropriations | 4,856 | 5,093 | 5,204 | +111 |
| Total | 21,134 | 21,735 | 22,497 | +762 |
| Total, average annual positions under all funds available to U.S. Department of Agriculture | 80,224 | 83,187 | 84,174 | +987 |
| Deduct average annual positions included above representing employment in other departments under allocations from U.S. Department of Agriculture funds | 226 | 274 | 309 | +35 |
| Total, average annual positions for U.S. Department of Agriculture personnel | 79,998 | 82,913 | 83,865 | +952 |

*Average annual positions in appropriations and other funds, fiscal years 1959, 1960, and 1961*—Continued

| | 1959 | 1960 (estimated) | 1961 (estimated) | Increase(+) or decrease (−), 1961 compared with 1960 |
|---|---|---|---|---|
| Recapitulation: | | | | |
| Included in U.S. Department of Agriculture Chapter: | | | | |
| Total annual appropriations | 64,417 | 65,960 | 67,066 | +1,106 |
| Corporate administrative expense limitation | 4,829 | 5,869 | 5,830 | −39 |
| Permanent appropriations | 1,594 | 1,607 | 1,654 | +47 |
| Other funds | 9,201 | 9,540 | 9,583 | +43 |
| Included in other chapters: Other funds | 183 | 211 | 41 | −170 |
| Total | 80,224 | 83,187 | 84,174 | +987 |
| Deduct average annual positions included above representing employment in other departments under allocations from U.S. Department of Agriculture funds | 226 | 274 | 309 | +35 |
| Total, average annual positions for U.S. Department of Agriculture personnel | 79,998 | 82,913 | 83,865 | +952 |

Mr. GRANT. That concludes my comments, and I will be glad to answer any questions you may have, or that any other member of the committee may have.

Mr. WHITTEN. I don't have any further questions. I would like to thank both you and Mr. Roberts for a fine presentation. Mr. Natcher?

LABORATORIES IN FLORIDA

Mr. NATCHER. Most of the increase under research is for a new laboratory in the State of Florida?

Mr. GRANT. That is a separate item under construction of facilities—the fifth item on the table—with an estimate of $900,000. That is for an entomology research laboratory at Gainesville, Fla., to replace the facilities at Orlando, Fla.

Mr. NATCHER. Can you tell me how many new laboratories we have built in the State of Florida in the last 6 years?

Mr. GRANT. I don't have it.

Mr. NATCHER. Please insert it at this point in the record?

Mr. GRANT. Yes; I will.

(The following statement was submitted later:)

*Laboratory facilities constructed and equipped in Florida, fiscal years 1955–60*

| | |
|---|---|
| Agricultural Research Service: 1957—Laboratory for research on citrus and other fruits and vegetables constructed and equipped at Winter Haven, Fla | $678,585 |
| Agricultural Marketing Service: 1958—Additional space constructed for biological research at the Horticultural Field Laboratory at Orlando, Fla | 10,000 |
| Forest Service: | |
| 1957—Additional space constructed at Forest Soils Laboratory, including greenhouse, at Chipola Experimental Forest, Fla | 25,133 |
| 1959—Laboratory for forest research constructed at Lake City, Fla., on Olustee Experimental Forest | 216,000 |

PAYMENTS TO STATE EXTENSION SERVICES

Mr. NATCHER. The $2,865,000 under the Extension Service payment to States, it is all for rural development?

Mr. GRANT. That is for rural development on a matching basis. Section 8 of the Smith-Lever Act authorizes payments for rural development without matching, and there is currently an appropriation of $890,000 available under this section. This increase of $2,865,000 will be on a matching basis, however, under section 3(c) of the act.

BRUCELLOSIS ERADICATION PROGRAM

Mr. NATCHER. Now, under your "Plant and animal diseases and pest control," we have this reduction of $1,331,600. Is any part of that the brucellosis program?

Mr. GRANT. Yes, sir.

Mr. NATCHER. How much reduction do you have as far as brucellosis is concerned?

Mr. GRANT. The reduction is $1.25 million.

Mr. NATCHER. In fact, nearly all the reduction is in the brucellosis program?

Mr. GRANT. That is right. There is another decrease of $850,000 for screwworm eradication, but there is an increase of about $500,000 for plant quarantine. The item for brucellosis eradication is to try to level the program off at approximately $15 million, which is a little more than the States are contributing to the program. State contributions are estimated at more than $14 million this year.

Mr. NATCHER. Of course, Mr. Grant, this is not in your department, but I personally believe that the brucellosis program should be strengthened whenever possible, and especially if the States are cooperating. As I understand, if the States do not come up with their part of the money, it might be necessary to reduce it, but this is a good program, and I am sorry to see any reduction at all.

CREDITS TO CCC UNDER NEW PROCEDURES FOR FOREIGN CURRENCY PROGRAMS

Now, Mr. Grant, under restoration of funds as you know a part of the President's budget message dealt with this matter, to the extent that a general statement was made that agencies seeking to use foreign currencies are charged for them through the appropriate process, and corresponding credit is made to the cost of the foreign private support program, as it should be.

Beginning as of now, Mr. Grant, under our foreign currency program and our restoration of funds, as far as Commodity Credit Corporation is concerned, assuming the Department of State wanted to use $250 million in foreign currency funds in some particular country, with this money all coming from the sale of surplus commodities under Public Law 480, what would be the procedure as far as giving of credit is concerned?

Mr. GRANT. The procedure will be that, beginning July 1, 1960, the State Department, for example, in carrying out a program for one of the purposes authorized in Public Law 480, assuming the Congress had approved an appropriation for that purpose, would proceed with the necessary steps to carry out the program overseas. They

would obtain foreign currencies, as needed to meet expenses, by purchase from designated depositories of the U.S. Treasury overseas using the dollars provided by the appropriation for this purpose. These, of course, are foreign currencies in the country involved, which are on hand there and owned by the Treasury as a result of sales under title I, Public Law 480. The dollars used to purchase foreign currencies would then flow back through the Treasury and be deposited to the credit of the Commodity Credit Corporation. The Commodity Credit Corporation would apply those receipts against the costs of title I, Public Law 480.

This new procedure for foreign currencies does not apply to loans or to grants made to the foreign countries by the Federal Government. It only applies to what is called U.S. uses.

Mr. NATCHER. Do you have any idea how much could have been credited to Commodity Credit Corporation, if this program had been in operation all along? Do you have any idea as to the amount?

Mr. GRANT. I would be glad to insert it in the record. I do not know offhand. You are talking about following the same concept as proposed in 1961?

Mr. NATCHER. That is correct.

Mr. GRANT. I will be glad to do that.

(Material referred to follows:)

Under the procedure proposed in the 1961 budget for authorizing uses of foreign currencies derived from sales of surplus agricultural commodities under Public Law 480, the Commodity Credit Corporation would receive credit for all foreign currencies to be used by other agencies of the Government for conducting programs overseas (except foreign currencies used for loans and grants in the foreign country). Under the procedures in effect through fiscal year 1960, the Corporation receives credit only for those foreign currencies which are purchased by the using agency from the Treasury with U.S. dollars. The Corporation does not receive credit for those foreign currencies allocated directly to agencies for their own use without purchase in U.S. dollars. Cumulative authorizations covering the latter amounts through June 30, 1960, are estimated to be about $286 million computed at the exchange rates specified in the sales agreements (as detailed in table 9, p. 935, of the 1961 budget).

Because of variations in rates of exchange over the years, uncompleted commodity shipments under sales agreements, and other factors, it is not practicable to determine exactly the extent to which this $286 million would have resulted in credits to the Corporation if the proposed procedure had been in effect through fiscal year 1960.

Included in the $286 million is an estimated $68 million in unexpended balances as of June 30, 1960 (computed at the Treasury selling rate at June 30, 1959) which would be credited to the Corporation under the procedure proposed in the 1961 budget. The foreign currency appropriation language proposed for the various agencies in 1961 would provide a dollar appropriation in the amount of such balances to purchase the currencies from the Treasury and thus subsequently reimburse the Corporation. The total credit to CCC under the amounts proposed in the 1961 budget estimates is expected to be about $141 million.

Mr. NATCHER. That is all, Mr. Chairman.

Mr. ANDERSEN. I would like to say that the questions I asked are not directed personally at Mr. Grant or Mr. Roberts. I have a lot of respect for those two gentlemen. I am simply seeking information to develop later in the hearings. Certainly they cannot be responsible for all of the various segments of the bill. That is not their province.

Mr. WHITTEN. I would like to ask two questions: I have been dealing with the budgeting process for a long time and have made numerous speeches in recent weeks that we have to keep a strong economy behind our frontline military. I personally agree that under our system, various folks in the military may wish for more of the overall job and may feel that more for their services is proper, and they should be hopeful for it; but, in the final analysis, under our system, whether you be a Democrat or a Republican, these differences have to be reconciled and be fitted into what can be done and still keep a strong economy behind the frontline military. So, having said that, I ask this question: Now, is this budgeted amount sent down to the Department by the Bureau of the Budget? Are you folks told to fit your budget into an overall amount?

Mr. GRANT. Yes, sir. It was a cooperative undertaking. The budget process started some time ago. I think our first estimate was made about last May, when under certain broad policy guidelines, we developed preliminary figures. There were some discussions with the Budget Bureau, and a few weeks later we were given a figure within which we were to submit the budget.

Mr. WHITTEN. Was that figure given to you prior to your submitting your request? Normally, as I understand it, you supply to the Bureau of the Budget a departmental request. In other words, each agency submits normally to the Secretary what is thought to be needed for the particular agency or setup, the particular breakdown, and as a usual thing the Secretary scales those things back to whatever level he may feel appropriate, and those figures are then taken to the Bureau of the Budget.

In this case, did they ask first, or did the Bureau of the Budget send you a figure, without your being permitted to submit your request?

Mr. GRANT. The process last year was slightly different from the way you explained it, Mr. Chairman.

In the past year the estimates were developed in broad, general categories, and not in terms of detailed items, along in the late spring. These were furnished the Budget Bureau informally and discussed with them, based on some general guidelines and policy statements. It was after that discussion of 1961 estimates that we received a letter setting forth the specific amounts. Then in late September, the Department formally submitted its detailed estimates for 1961, within the ceiling allowances. So there had been some discussions prior to the submission of the letter.

Mr. WHITTEN. What I am trying to do here is to determine whether some of these items have been reduced, with the thought that this committee would put them back; whether somebody in the Department figured that the committee would necessarily have to restore them.

For instance, there is this reduction in brucellosis eradication, when all the testimony shows that to delay it streatches out the eradication problem and will add to the expense. I notice under the budget allowance for the flood prevention program the work is to be

delayed greatly, and the longer you stretch it out, the more expensive it will be.

I could name several other things here, the ACP program, for instance, where the budget estimates will cause a scale back in announcements, and so forth. They make me wonder whether the Department did not include the things in here that they thought might not be approved by Congress while certain things that the committee might feel should be increased were reduced. I wondered whether the Bureau of the Budget gave you a flat figure which enabled you to do what has been done in preparing this budget?

Mr. GRANT. No; that concept was not a consideration. One of the policy guidelines that I mentioned a moment ago was to the effect that efforts be made to hold the 1961 budget at the 1960 budget level, except for urgent items. For some of the items that you mentioned, that was one of the factors taken into consideration; not whether or not the committee would restore them.

LIBRARY SERVICES

Mr. WHITTEN. I notice one other detailed item I overlooked, and that has to do with the transfer in the 1961 estimate of the field library services of the ARS. We did that last year? Is that a matter we should ask them about, or are you in a position to comment on it?

Mr. GRANT. I believe Dr. Shaw does plan to comment on the library work. The library comes under Mr. Roberts' supervision and he may wish to comment on your question.

Mr. WHITTEN. How does it work out?

Mr. ROBERTS. It is working out very well, Mr. Chairman. We have taken three steps on library services. We have taken out of the library a lot of documents which were really not library materials, but which were archival materials; thus we have released space badly needed for the storage of books. Then we have made the adjustment we talked with the committee about last year. This permitted the regional research laboratories, the Forest Products Laboratory, and the forest experiment stations, to maintain their own library service; and that is working out very well indeed.

As a third step, we have adjusted the routing of periodicals, both in Washington and in the field, in such a way that the man-years of time devoted to the routing of periodicals has been substantially reduced, and we are putting a little more money into the purchase of periodicals themselves, getting them into the hands of the people who need them at the time they need them, rather than having them routed around the country and having our research people receive them 30 days to 6 months after they were released.

We will be able to give you a detailed explanation, when we have the library people up here. The whole process resulted in a very substantial improvement in the library service, both in Washington and the field.

Mr. WHITTEN. With respect to the new agricultural yearbook—which has been in such great demand—many of our nonfarm Members are very anxious to get this agricultural publication. It seems to have lots of very valuable information in it with respect to the handling of food.

I wonder if any thought had been given to the reprinting of a new book, and perhaps delaying whatever book you have for this for the following year?

Mr. HORAN. This book will have urban appeal.

Mr. SANTANGELO. I have received more requests for this book than I have received for any other publication.

Mr. WHITTEN. This book is so very much in demand, and we have done this in the past several times.

Mr. ROBERTS. There is no question but what the yearbook on "Food" is one of the most popular best sellers we have ever produced. It has a popular appeal in the urban as well as the rural areas. The Superintendent of Documents sold 20,000 copies in the first 3 months; this compares with the first year sales of 32,000 copies of the book on "Livestock," which was a very popular one.

We have this problem. Our plans are well underway for the 1960 yearbook on the "Technological Revolution." We have page proofs on it back from the Public Printer. It is too late to stop that one. The 1961 yearbook is on "Seeds." Our Yearbook Committee, and the contributors to it, have been working now for about 6 months in the preparation of articles and material that will go into it.

Mr. WHITTEN. Is this book already financed out of money we appropriated last year, or is it in anticipation?

Mr. ROBERTS. The one on seeds would be financed—that is, the printing of it—from the 1961 appropriation.

Mr. WHITTEN. And the technological revolution?

Mr. ROBERTS. That is paid for from the 1960 appropriation. "Seeds" comes from the 1961 appropriation. If there should have to be a deferment, it would have to come on next year's book.

We have this problem: We would like to plan for a centennial yearbook for the Department in 1962. That will be the centennial year of the establishment of both the land-grant college system and the Department, and we have developed some ideas for a centennial yearbook. We certainly wouldn't want to put out a centennial yearbook on seeds. We want something much broader than that, so that if we don't publish the one on seeds in 1961, it would have to be held over until 1963.

The estimated cost of reprinting 233,000 additional copies of "Food," which would about the congressional authorization, is estimated to be about $179,300.

Mr. ANDERSEN. Mr. Roberts, would you agree, rather, that it would probably be better business to ask for a supplemental to put out an additional edition of "Food," and continue the other program?

Mr. ROBERTS. Well, I don't know what is best from that standpoint, Mr. Andersen. Certainly from the standpoint of the yearbook, it would mean that the work that we have put into the development of material on seeds would have to be put on the shelf until 1963, and then reexamined.

There is also the problem of the International Seed Year in 1961. Our book was developed in connection with that, also.

Mr. ANDERSEN. Suppose, instead, that you requested of the Congress a supplemental to put out an additional 150,000 copies of "Food," and then not deviate from your regular program.

In other words, this would be just an addition to what we were given last year.

Mr. ROBERTS. The reason I was hesitating on that is that I am not sure that such a request would meet the budget policy requirements for appropriation.

Mr. WHITTEN. Are there any further questions?

Gentlemen, we wish to thank you for a very fine presentation of all the problems. We trust you will be around through the hearings, to help us arrive at some of the answers.

Mr. ROBERTS. I will be up from time to time, Mr. Chairman.

Mr. GRANT. We will be glad to do whatever we can to facilitate the work of the committee.

Mr. WHITTEN. Thank you, Mr. Grant.

We might turn now to Mr. Wells.

## GENERAL AGRICULTURAL OUTLOOK

### WITNESSES

**O. V. WELLS, ADMINISTRATOR, AGRICULTURAL MARKETING SERVICE.**

**NATHAN M. KOFFSKY, DEPUTY ADMINISTRATOR, ECONOMICS AND STATISTICS, AGRICULTURAL MARKETING SERVICE**

**C. KYLE RANDALL, AGRICULTURAL ECONOMICS DIVISION, AGRICULTURAL MARKETING SERVICE**

**CHARLES L. GRANT, DIRECTOR OF FINANCE AND BUDGET OFFICE, DEPARTMENT OF AGRICULTURE**

Mr. WHITTEN. Gentlemen, we have with us, Mr. O. V. Wells, Administrator of the Agricultural Marketing Service; Mr. Nathan M. Koffsky, Deputy Administrator, Economics and Statistics, Agricultural Marketing Service; and Mr. C. Kyle Randall, Agricultural Economics Division of the Agricultural Marketing Service. They are here to tell us the sad story. We will be glad to hear you, Mr. Wells.

Mr. WELLS. Mr. Chairman, I have a series of charts and one table that I would like to discuss with the committee, if I might. I would hope you would extend me the courtesy of allowing me to review or revise my remarks for the record, so we can have a free and open discussion as we go along.

Mr. WHITTEN. We shall be glad to have you do that, Mr. Wells.

Also, we trust you will take the liberty of revising your remarks, to put these various charts in the record and in such order as the discussion will fit the chart, as you have done in the past. Just take complete liberty to make the record responsive to the chart.

Mr. WELLS. We will do that, Mr. Chairman.

In addition, Mr. Chairman, from time to time you and other members of the committee have asked for a number of tables which we have also brought up to date. We do that to supplement the chart material. For example, we have a table showing Government payments to farmers, which gives both the total and the breakdown among the various programs.

## SUMMARY OF AGRICULTURAL TRENDS AND THE CURRENT FARM SITUATION

I would like, instead of starting with the charts, to first discuss one table which summarizes agricultural trends over recent years and the current farm situation. This table shows where we are now, and I think will help you understand where we may go during the current calendar year, 1960.

(The table referred to follows:)

*Selected data relating to farm prices and incomes, United States, 1939 and 1951–59*

| Year | Prices received and paid | | | Food market basket [3] | | Total farm output | Food consumption per capita | Agricultural exports | Sales, expenses, and realized income of farm operators from farming | | | Income to persons on farms | | Index of farm-land values |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Prices received by farmers | Prices paid or parity index [1] | Parity ratio [2] | Farm value | Marketing margin | | | | Cash receipts from sales [4] | Production expenses [4] | Realized net income [4] | From farming | From all sources | |
| | *1910–14=100* | | *Percent* | *Dollars* | *Dollars* | *1947–49=100* | | *Million dollars* | *Billion dollars* | *Billion dollars* | *Billion dollars* | *Billion dollars* | *Billion dollars* | *1912–14=100* |
| 1939 | 95 | 123 | 77 | [3] 172 | [3] 279 | 79 | 94 | 655 | 7.9 | 6.2 | 4.4 | 5.2 | 7.7 | 82 |
| 1951 | 302 | 282 | 107 | 497 | 527 | 104 | 98 | 4,040 | 33.0 | 22.2 | 15.2 | 18.1 | 23.7 | 200 |
| 1952 | 288 | 287 | 100 | 482 | 552 | 108 | 100 | 3,431 | 32.6 | 22.6 | 14.4 | 17.3 | 23.4 | 221 |
| 1953 | 255 | 277 | 92 | 445 | 558 | 109 | 101 | 2,847 | 31.1 | 21.4 | 13.9 | 15.1 | 21.1 | 221 |
| 1954 | 246 | 277 | 89 | 421 | 565 | 109 | 101 | 3,054 | 30.0 | 21.7 | 12.2 | 14.4 | 20.2 | 216 |
| 1955 | 232 | 276 | 84 | 395 | 574 | 113 | 102 | 3,199 | 29.6 | 21.9 | 11.5 | 13.5 | 19.8 | 224 |
| 1956 | 230 | 278 | 83 | 390 | 582 | 114 | 104 | 4,170 | 30.6 | 22.6 | 12.0 | 13.4 | 20.1 | 232 |
| 1957 | 235 | 286 | 82 | 401 | 606 | 114 | 102 | 4,506 | 29.8 | 23.4 | 11.0 | 13.6 | 20.2 | 247 |
| 1958 | 250 | 293 | 85 | 430 | 634 | 125 | 101 | 3,854 | 33.6 | 25.2 | 13.1 | 16.0 | 22.3 | 262 |
| 1959 [5] | 240 | 298 | 80 | 399 | 641 | 125 | 103 | 3,950 | 32.8 | 26.0 | 11.0 | 13.6 | 20.3 | 282 |
| 1958—1st quarter | 248 | 291 | 85 | 439 | 617 | ([6]) | ([6]) | 924 | 33.7 | 24.9 | 13.4 | ([6]) | ([6]) | [7] 262 |
| 2d quarter | 254 | 294 | 86 | 446 | 639 | ([6]) | ([6]) | 988 | 33.3 | 25.2 | 12.8 | ([6]) | ([6]) | |
| 3d quarter | 251 | 293 | 86 | 423 | 645 | ([6]) | ([6]) | 905 | 33.6 | 25.2 | 13.2 | ([6]) | ([6]) | [8] 268 |
| 4th quarter | 247 | 294 | 84 | 411 | 637 | ([6]) | ([6]) | 1,037 | 33.7 | 25.3 | 13.2 | ([6]) | ([6]) | [9] 274 |
| 1959—1st quarter [5] | 244 | 298 | 82 | 409 | 633 | ([6]) | ([6]) | 852 | 33.7 | 25.9 | 12.2 | ([6]) | ([6]) | [7] 282 |
| 2d quarter | 244 | 299 | 82 | 403 | 637 | ([6]) | ([6]) | 926 | 33.1 | 26.1 | 11.2 | ([6]) | ([6]) | |
| 3d quarter | 238 | 297 | 80 | 396 | 648 | ([6]) | ([6]) | 986 | 31.5 | 26.1 | 9.5 | ([6]) | ([6]) | [8] 285 |
| 4th quarter | 231 | 297 | 78 | 387 | 647 | ([6]) | ([6]) | 1,186 | 32.8 | 26.0 | 10.9 | ([6]) | ([6]) | [9] 287 |

[1] Prices paid by farmers for goods used in farm family living and production including allowances for taxes and mortgage interest paid per acre of farm real estate and for hired labor.

[2] Index of prices received expressed as a percentage of the index of prices paid.

[3] The market basket includes estimated quantities of U.S. grown foods purchased per urban worker family in 1952. 1939 estimates based on same market basket as for 1947 to date.

[4] Quarterly data are seasonally adjusted annual rates.

[5] Preliminary.

[6] Quarterly data not available.

[7] Mar. 1.

[8] July 1.

[9] Nov. 1.

Compiled from Agricultural Marketing Service, Agricultural Research Service, and Foreign Agricultural Service data.

Mr. WELLS. I want, first of all, to call your attention to the first column, which shows the index of prices received by farmers—that is, what has been happening to farm prices in the United States.

In 1958 this index was 250, as compared to the 1910–14 average of 100. It dropped in 1959 to an average of 240.

Will you look at the quarterly averages for 1959? In the first quarter, prices received by farmers averaged 244; the second quarter was 244; the third quarter was 238; and the fourth quarter was 231.

Meanwhile, the farm price or prices received index for January of 1960 is 231, and if you were to ask Mr. Randall and Mr. Koffsky and myself our best guess as to what farm prices will average for the calendar year 1960, we would say not a great deal different than the fourth quarter of last year. Admittedly, a number of things may happen. Prices for some commodities will go up and some will go down, but the current outlook is for a fairly stable average at about the current level. Now, if we assume that the farm price level for 1960 will be close to the fourth-quarter average for 1959, then the calendar year average for 1960 would necessarily show a decline of about 4 percent from the calendar year average for 1959.

Mr. WHITTEN. I shall ask you these questions in advance, Mr. Wells. It appears to a layman who had nothing to do with agriculture, that, figured on these prices of 1910–14, the farmer was getting approximately 2⅓ times as much in terms of dollars, and he is getting 297 percent of parity.

Mr. WELLS. I beg your pardon. The first column shows the index of prices received by farmers; the so-called parity index in the second column of the table is actually the index of prices paid by farmers. The comparison between the two indexes is in the third column. The parity ratio in the last quarter of 1959 was 78 percent; for January 1960 it is 77 percent.

Mr. WHITTEN. Is that your new parity or the old parity?

Mr. WELLS. This is the revised index.

Mr. WHITTEN. What have you figured in terms of old parity?

Mr. WELLS. It would have been 75 percent instead of 77 percent for January 1960.

Mr. WHITTEN. We get into this situation again: The farmer already knows what kind of fix he is in, so we will have to prepare a record so others will understand it.

Now, this 75 percent of parity, is that 75 percent of what others are getting? What is that 75 percent of?

Mr. WELLS. The parity ratio simply measures the change in the purchasing power of the farm dollar from the base 1910–14. It simply says that the farm dollar today buys only 77 percent as much as it would have in 1910–14, that a fixed quantity of farm commodities would today buy only 77 percent as much as in 1910–14 despite the fact that farm prices are 2⅓ times what they were in 1910–14 base period. It is simply a per unit purchasing power comparison. It does not say how well farmers live. It is not a cost-of-production figure; nor is it a "fair" figure, except as some people may take it as a goal.

Mr. WHITTEN. You have other figures in which you show parity prices?

Mr. WELLS. Yes, sir. We will insert the appropriate farm price and parity tables as well as a farm income table which includes a

comparison between the average per capita incomes of farm and nonfarm people.

If farm prices stayed where they are, there would be this 4-percent difference, as I said, from 1959; and this would be one of the factors affecting farm income in 1960.

(The table on farm and nonfarm income appears on p. 82; other tables referred to follow:)

*Average prices received by farmers for selected farm products, United States, Jan. 15, 1960, with comparisons*

| Commodity and unit | Average | | Jan. 15, 1959 | Nov. 15, 1959 | Dec. 15, 1959 | Jan. 15, 1960 |
|---|---|---|---|---|---|---|
| | August 1909–July 1914 | January 1947–December 1949 | | | | |
| Wheat, per bushel | $0.884 | $2.14 | $1.71 | $1.79 | $1.79 | $1.78 |
| Rye, per bushel | .720 | 1.82 | .967 | 1.01 | .960 | .925 |
| Rice (rough), per hundredweight | 1.81 | 5.38 | [1] 4.79 | 4.64 | [1] 4.68 | 4.92 |
| Corn, per bushel | .642 | 1.64 | 1.02 | .982 | .959 | .979 |
| Oats, per bushel | .399 | .852 | .590 | .669 | .677 | .685 |
| Barley, per bushel | .619 | 1.37 | .911 | .879 | .864 | .848 |
| Sorghum grain, per hundredweight | | 2.53 | 1.73 | 1.51 | 1.50 | 1.53 |
| Hay, all baled, per ton | | 22.40 | 19.30 | 21.00 | 21.90 | 22.20 |
| Cotton: | | | | | | |
| American upland, per pound | [2] .124 | .3121 | .2823 | .3084 | .3003 | .2934 |
| American-Egyptian, per pound | | | [1] .517 | .533 | .533 | .531 |
| Tobacco, types 11-37, per pound [3] | [4] .100 | .428 | .567 | .528 | .587 | .495 |
| Cottonseed, per ton | 22.55 | 71.60 | 43.30 | 38.80 | 39.10 | 39.60 |
| Soybeans, per bushel | | 2.84 | 2.02 | 2.00 | 1.98 | 2.01 |
| Peanuts, per pound | .048 | .102 | .105 | .0987 | .104 | .101 |
| Flaxseed, per bushel | 1.69 | 5.54 | 2.59 | 3.44 | 3.20 | 3.12 |
| Potatoes, per hundredweight [3] | 1.14 | 2.46 | 1.21 | [1] 1.86 | 1.89 | 2.10 |
| Sweetpotatoes, per hundredweight | 1.60 | 4.28 | [1] 4.58 | [1] 2.70 | [1] 3.55 | 3.51 |
| Beans, dry edible, per hundredweight | 3.37 | 9.92 | [1] 6.67 | 7.21 | 7.41 | 7.50 |
| Peas, dry field, per hundredweight | | 4.60 | [1] 5.98 | 3.90 | 4.23 | 3.92 |
| Apples, for fresh use, per bushel [5] | | 1.90 | 1.72 | 2.00 | 2.09 | 2.14 |
| Peaches, for fresh use, per bushel | | | | | | |
| Pears, for fresh use, per bushel [5] | | | 1.61 | 2.28 | 2.58 | 2.12 |
| Strawberries, for fresh use, per pound | | .257 | | | | |
| Grapefruit (equivalent on-tree), per box | | .83 | 1.12 | .94 | 1.04 | .93 |
| Oranges (equivalent on-tree), per box [6] | | 1.26 | 2.55 | 1.81 | 1.81 | 2.06 |
| Lemons (equivalent on-tree), per box | | 2.50 | 1.60 | 2.29 | 1.57 | 1.36 |
| Limes (equivalent on-tree), per box | | 2.56 | 2.06 | .71 | 1.44 | 2.15 |
| Tangerines (equivalent on-tree) per box | | 1.39 | .86 | 2.48 | 2.72 | 2.10 |
| Tangelos (equivalent on-tree), per box | | | | 4.64 | 4.24 | 3.29 |
| Hogs, per hundredweight | 7.27 | 21.90 | 16.40 | 12.20 | 11.20 | 12.10 |
| Beef cattle, per hundredweight | 5.42 | 20.20 | 22.90 | 20.00 | 19.50 | 20.30 |
| Calves, per hundredweight | 6.75 | 22.60 | 27.80 | 23.90 | 23.10 | 24.00 |
| Sheep, per hundredweight | 4.53 | 9.15 | 7.01 | 5.31 | 5.33 | 5.74 |
| Lambs, per hundredweight | 5.88 | 21.90 | 18.40 | 17.20 | 16.60 | 17.80 |
| Milkfat, in cream, per pound | .263 | .712 | .586 | .609 | .618 | .597 |
| All milk, wholesale, per hundredweight [5] | 1.60 | 4.42 | 4.34 | 4.60 | 4.48 | [7] 4.36 |
| Milk eligible for fluid market | | | 4.87 | 5.12 | 4.99 | |
| Milk of manufacturing grade | | | 3.26 | 3.45 | 3.39 | |
| Milk, retail, per quart [8] | .068 | .183 | .215 | .218 | .218 | .217 |
| All chickens, live, per pound | .114 | .293 | .167 | .138 | .162 | .163 |
| Farm chickens, live, per pound | | .277 | .128 | .096 | .104 | .113 |
| Commercial broilers, live, per pound | | .321 | .174 | .150 | .176 | .171 |
| Turkeys, live, per pound | .144 | .370 | .239 | .249 | .297 | .282 |
| Eggs, per dozen | .215 | .466 | .366 | .313 | .307 | .296 |
| Wool, per pound [9] | .183 | .460 | .346 | .409 | .417 | .425 |
| Mohair (Texas only), per pound | | | .750 | .970 | 1.030 | 1.040 |
| Adjusted for seasonal variation: | | | | | | |
| All milk, wholesale, per hundredweight [3] | | | 4.13 | 4.14 | 4.15 | [7] 4.15 |
| Eggs, per dozen | | | [1] .370 | .290 | .287 | .293 |

[1] Revised.
[2] All cotton.
[3] Monthly average.
[4] All tobacco.
[5] Equivalent packinghouse-door returns for Pacific Coast States and price as sold for other States.
[6] Excludes tangerines.
[7] Preliminary.
[8] Sold by farmers directly to consumers.
[9] Average local market price for wool sold; does not include incentive payment to bring season average return to 62 cents per pound.]

NOTE.—Based on reports from 9,411 regular price reporters and supplementary data from special commodity surveys, marketing agencies, and related sources. Data are weighted according to relative importance of States to compute U.S. average.

*Effective U.S. parity prices for selected farm products and average prices received as percentages of effective parity prices based on data for January 1960 with comparisons* [1]

| Commodity and unit | Adjusted base prices [2] | Effective parity prices [3] based on data for— | | | Average prices as percentages of parity prices | | |
|---|---|---|---|---|---|---|---|
| | | January 1959 | December 1959 | January 1960 | January 1959 | December 1959 | January 1960 |
| Basic commodities: | | | | | | | |
| Cotton, per pound: | | | | | | | |
| American uplands ..cents.. | 12.92 | 38.00 | 37.93 | 38.63 | 74 | 79 | 76 |
| Extra long staple..do.... | [4] 27.3 | 81.4 | 81.4 | 81.6 | ---- | ---- | ---- |
| Wheat, per bushel..dollars.. | .792 | 2.36 | 2.36 | 2.37 | 72 | 76 | 75 |
| Rice, per hundredweight ..dollars.. | 1.98 | 5.84 | 5.82 | 5.92 | [5] 82 | [5] 80 | 83 |
| Corn per bushel.....do.... | .545 | [6] 1.69 | [6] 1.71 | 1.63 | 60 | 56 | 60 |
| Peanuts, per pound..cents.. | [4] 4.31 | 12.9 | 12.9 | 12.9 | [5] 81 | 81 | 78 |
| Tobacco, per pound: | | | | | | | |
| Flue-cured, types 11–14 ..cents.. | [4] 21.2 | 61.7 | 61.5 | 63.4 | ---- | 72 | ---- |
| Virginia Fire-cured, type 21.....cents.. | (7) | ---- | 41.9 | ---- | ---- | 91 | ---- |
| Kentucky-Tennessee Fire-cured, types 22–23.....cents.. | (7) | ---- | 41.6 | ---- | ---- | ---- | ---- |
| Barley, type 31..do.... | (7) | ---- | 63.6 | ---- | ---- | 94 | ---- |
| Maryland, type 32 ..do.... | [5] 19.3 | 56.6 | 56.4 | 57.7 | 119 | ---- | ---- |
| Dark Air-cured, types 35–36.....cents.. | (7) | ---- | 36.8 | ---- | ---- | 94 | ---- |
| Sun-cured, type 37 ..do.... | (7) | ---- | 38.0 | ---- | ---- | 89 | ---- |
| Designated nonbasic commodities: | | | | | | | |
| Milkfat, in cream, per pound.....cents.. | 24.7 | 73.6 | 73.4 | 73.9 | 80 | 84 | 81 |
| All milk, wholesale, per hundredweight..dollars.. | 1.67 | 4.95 | 4.93 | 4.99 | [9] 83 | [9] [5] 84 | [9] 83 |
| Wool and mohair: | | | | | | | |
| Wool, per pound...cents.. | [4] 24.8 | 72.1 | 71.9 | 74.2 | [10] [5] 48 | [10] 58 | [10] 57 |
| Mohair, per pound...do.... | (7) | ---- | 95.0 | ---- | ---- | ---- | ---- |
| Other nonbasic commodities: | | | | | | | |
| Barley, per bushel..dollars.. | .424 | 1.28 | 1.28 | 1.27 | 71 | 68 | 67 |
| Beans, dry edible, per hundredweight....do.... | 2.96 | 8.88 | 8.85 | 8.85 | [5] 75 | 84 | 85 |
| Cottonseed, per ton..do.... | [4] 22.40 | 67.00 | 66.80 | 67.00 | 65 | 59 | 59 |
| Flaxseed, per bushel..do.... | 1.28 | 3.96 | 3.95 | 3.83 | 65 | 81 | 81 |
| Oats, per bushel.....do.... | .281 | .837 | .835 | .840 | 70 | 81 | 82 |
| Potatoes, per hundredweight.....do.... | [4] .780 | 2.32 | 2.32 | 2.33 | 52 | 81 | 90 |
| Rye, per bushel.....do.... | .498 | 1.50 | 1.50 | 1.49 | 64 | 64 | 62 |
| Sorghum grain, per hundredweight.....do.... | .835 | 2.54 | 2.53 | 2.50 | 68 | 59 | 61 |
| Soybeans, per bushel ..do.... | .973 | 2.90 | 2.89 | 2.91 | 70 | 69 | 69 |
| Sweetpotatoes, per hundredweight.....do.... | 1.84 | 5.54 | 5.52 | 5.50 | [5] 83 | [5] 64 | 64 |
| Grapefruit, (equivalent on-tree), per box.....do.... | [11] 1.25 | [6] 1.20 | [6] 1.21 | [6] 1.08 | 93 | 86 | 88 |
| Lemons, (equivalent on-tree), per box.....do.... | [4] .776 | 2.52 | 2.47 | 2.32 | 63 | 64 | 59 |
| Limes (equivalent on-tree), per box [12].....do.... | [4] 1.15 | ---- | ---- | 3.44 | ---- | ---- | 62 |
| Oranges (equivalent on-tree), per box [13]....do.... | [4] .714 | [6] 2.20 | [6] 2.20 | 2.13 | ---- | 82 | 97 |
| Tangerines, (equivalent on-tree), per box [13]....do.... | [11] 3.12 | ---- | [6] 3.02 | [6] 2.71 | ---- | 90 | 77 |
| Apples, for fresh use, per bushel [14].....do.... | .831 | ---- | 2.47 | 2.48 | ---- | 85 | 86 |
| Beef cattle, per hundredweight.....do.... | 7.92 | 23.20 | 23.10 | 23.70 | 99 | 84 | 86 |
| Calves, per hundredweight ..do.... | 8.75 | 25.50 | 25.40 | 26.20 | 109 | 91 | 92 |
| All chickens, live, per pound.....cents.. | 8.59 | 26.9 | 26.8 | 25.7 | 62 | 60 | 63 |
| Eggs, per dozen.....do.... | 15.5 | 47.4 | 47.2 | 46.3 | [9] 78 | [9] 61 | [9] 63 |
| Hogs, per hundredweight ..dollars.. | 7.14 | 21.70 | 21.60 | 21.30 | 76 | 52 | 57 |

See footnotes at end of table, p. 72

*Effective U.S. parity prices for selected farm products and average prices received as percentages of effective parity prices based on data for January 1960 with comparisons*—Continued

| Commodity and unit | Adjusted base prices [2] | Effective parity prices [3] based on data for— | | | Average prices as percentages of parity prices | | |
|---|---|---|---|---|---|---|---|
| | | January 1959 | December 1959 | January 1960 | January 1959 | December 1959 | January 1960 |
| Other nonbasic commodities—Continued | | | | | | | |
| Lambs, per hundredweight | do.... 8.55 | 25.70 | 25.60 | 25.60 | 72 | 65 | 70 |
| Sheep, per hundredweight | do.... 3.24 | 10.00 | 9.98 | 9.69 | 70 | 53 | 58 |
| Turkeys, live, per pound | cents.. 11.6 | 36.1 | 35.9 | 34.7 | 66 | 83 | 81 |

[1] Parity prices are computed under the provisions of title III, subtitle A, sec. 301(a) of the Agricultural Adjustment Act of 1938 as amended by the Agricultural Acts of 1948, 1949, 1954, and 1956.
[2] Adjusted base price 1910–14 derived from 120-month, January 1950–December 1959 average (including an allowance where appropriate for unredeemed loans and other supplemental payments resulting from price-support operations) by dividing by 255 percent (the 120-month average of the index of prices received by farmers adjusted to include an allowance for unredeemed loans and other supplemental payments) unless otherwise noted.
[3] Effective parity prices as computed currently using base prices in effect and indexes for months indicated. These parity prices are the legally applicable parity prices for the following calendar month.
[4] Adjusted base price 1910–14 derived from 10 season average prices 1950–59 (including an allowance, where appropriate, for unredeemed loans and other supplemental payments) resulting from price-support operations.
[5] Revised.
[6] Transitional parity, basic commodities 80 percent and nonbasic commodities 45 percent (85 and 90 percent respectively during 1959) of parity price computed under formula in use prior to Jan. 1, 1950.
[7] Not available.
[8] Adjusted base price 1910–14 derived from 10 weighted calendar year prices 1950–59.
[9] Seasonally adjusted price as percentage of parity price.
[10] Computed from local market price for wool sold, not including incentive payments to bring season average return to 62 cents per pound.
[11] 10-season average 1919–28.
[12] The lime parity price was based on the price "as sold" prior to January 1960.
[13] Parity price computed for the first time in July 1959, tangerines formerly included with oranges.
[14] Equivalent packinghouse-door returns for Pacific Coast States and prices as sold for other States. See p. 19 and Supplement No. 1, Agricultural Prices, June 1959.

Mr. WHITTEN. I notice that in 1952 prices received by the farmer were 288 percent, which would mean almost three times what it was in 1910–14. I notice that slipped to 231 by the fourth quarter of 1959; but I notice since 1952 that the prices he has paid have gone up from 287 to 297.

Mr. WELLS. 299 this January.

Mr. WHITTEN. If farmers are kind of unhappy and if a fellow would read those figures, he would understand why they are unhappy and why they are trying to find a fall guy to lay it on.

Mr. WELLS. I try to prepare these tables with as little political implication as possible.

Mr. WHITTEN. We try to keep it out, too.

Mr. WELLS. 1951 was the alltime high for prices received by farmers, partly because of the Korean war.

Mr. WHITTEN. I think it is fine, and while that may be some explanation for the 302 in 1951, it doesn't explain the 297 that the farmers were having to pay.

Mr. WELLS. Outside of certain areas, prices in the United States are often relatively inflexible, and prices paid at retail are usually

more inflexible than other prices. In fact, the drop in the prices paid index from 1952 into 1953 as well as in the third quarter of 1959 was due to declines in the price of feed and feeder cattle, things which one group of farmers sell to another. If those prices had not come down, this index would be still higher.

Mr. WHITTEN. You might proceed.

Mr. WELLS. The second column of the table we have already discussed, with especial reference to the relatively steady upcreep of prices paid and farm costs.

Mr. WHITTEN. What is that up there? I believe you could improve on the title.

Mr. WELLS. It now says "Parity Index" but we will retitle it "Prices Paid or Parity Index."

VOLUME OF FARM OUTPUT

Let me briefly call your attention to the third column of this first table which shows our index of total farm output. In 1959 the index of total farm output was 125, equal to the alltime record established in 1958 and a full 20 percent above the 104 index for 1951. We are not in a position to give a firm estimate as to what it will be in 1960 because the weather will have a great deal to do with the crop yields. We do know that there are now 4 percent more livestock on the farms, and ranches, than we had a year ago; and we have every reason to believe that that livestock production will equal or exceed that of last year.

AGRICULTURAL EXPORTS

I would also call your attention to the column showing value of agricultural exports for the last several years. I think, Mr. Chairman, it is fair to say that we have been trying to move about $4 billion worth of farm products a year into the export market, which means you must move about $1 billion each quarter. The figure for the first quarter of 1959 was $852 million; the second quarter was $926 million; the third, $986 million; and with the recent increase in the movement of cotton and other commodities, it was up to $1.186 billion for the fourth or last quarter of 1959.

Mr. WHITTEN. You don't attempt to break that down between that which you are getting rid of under Public Law 480, do you?

Mr. WELLS. No, not here, but we have some charts which will show that later.

Over the last year we have steadily improved our export position, and our best guess for the current fiscal year is that the total value of farm exports will be about $4.2 billion. It looks like two very good quarters coming up in the first half of 1960.

This is a very attractive picture, one of the brighter spots in the farm outlook.

CASH RECEIPTS FROM FARM SALES

Now, let's look at cash receipts from farm sales. This is what commercial farmers are getting for commodities actually sold in the open market or put under loan to the Commodity Credit Corporation. You will note that in 1959 farmers got $32.8 billion from sales, a little down from the $33.6 billion for 1958 and almost exactly the same as the $33.0 billion for 1951.

Mr. WHITTEN. That shows that the farmers, on an increased production of 125 as against 104, are getting less money now.

Mr. WELLS. With a production index of 104 in 1951, cash receipts from farm sales ran $33.0 billion; with a 125 production index in 1959, cash sales were $32.8 billion.

### FARMERS' PRODUCTION EXPENSES

We also show production expenses, what the farmers must put out. This is, in effect, the index of prices paid by farmers times the amount of goods and services they must buy for production purposes. We estimate these expenses at $22 billion for 1951, $25.2 billion for 1958, and $26.0 billion for 1959. We would expect some further relatively small increase in 1960.

Mr. WHITTEN. Mr. Marshall and I introduced a bill a few days ago in an attempt to do something about this surplus on hand by contracting with the farmer to give to him from Government stocks up to one third of his total production, if he cut his production that much in an effort to bring production down and to get the supply and demand in balance.

Now, farm production has gone up from 104 percent of 1947–49 average to 125 percent, and I take the view, and I think your records will support me, that that increase in production has come from, first, acreage limitation, making the farmer do everything he could to produce; and, secondly, increasing costs; and, thirdly, reduced prices have led to efforts to have more units to sell. And in that period of time he has increased his production from 104 to 125, and I would roughly estimate that the difference between 104 production in 1951 and 125 in 1959 might be taken to be this surplus.

Now, in that period of time the farmers' cost of producing products, this 125 as against 104, has gone up approximately $4 billion. Do you have any figures to indicate how much the farmer is out in cost in overproduction, how much would he save if the Government gave him a farm policy where he would scale his products back to real need? How much is he out in the production of the farm products?

Mr. WELLS. I have no figures of that kind. The fellows who work with Sherman Johnson in the Agricultural Research Service might give you some estimate. A temporary cutback, or a small cutback in the production of each individual farm doesn't cut back production expenses by anything like what you might expect in the sense that the farmer must still have the machines and facilities for operating the whole farm. He will save some out-of-pocket costs for fertilizer; but his depreciation on his machinery will continue, and much of his savings will be in noncash costs—that is, in terms of his own labor or less use of his machinery and land.

Mr. WHITTEN. I recognize all those factors. I also recognize that a tractor normally has so many revolutions in its motor, and a tire has so much usage, and gasoline runs so much. While the savings would not be 100 percent, you quite clearly recognize that it costs a whole lot more to produce one-third more than it would one-third less.

Mr. WELLS. It does. But still it is a one-time cutback, you will save less than if you continue for 2 or 3 years.

Mr. WHITTEN. You are supporting Mr. Marshall's and my bill there.

Mr. WELLS. On a tractor and things like this, time alone takes something out of the life of a tractor or an automobile, whether you use it or not——

Mr. WHITTEN. The overproduction is also costing a great deal to the farmer to produce it.

Mr. WELLS. That is right, and you would save some money in not producing it, especially if farmers could plan far enough ahead.

### REALIZED NET FARM INCOME

The figures in this first summary table showing estimated realized net income of farm operators measures what farmers as businessmen can lay their hands on from their farm operations to pay farm family living expenses, to pay debts or to increase their savings or use for investment.

We think this is the best single measure of what the farmer realizes as a businessman. It does not include income from nonfarm sources, so it applies chiefly to full-time commercial farmers rather than part-time farmers. You will note that during the last year we started with realized net farm income at an annual rate of around $12.2 billion for the first quarter and in the last quarter it was around $10.9 billion, with an estimate $11 billion for the year 1959 as a whole.

The best estimate we can now make for 1960 is that net realized income of farm operators will be something less than the $11 billion for 1959. With favorable developments it might break even with last year, but the probability is that it will be half a billion dollars less than that.

### INCREASING FARM INVESTMENT

Mr. WHITTEN. Is that net after you charge other expenses, which you normally incur on the land?

Mr. WELLS. No; this is what farm operators can lay their hands on as pay for their management, the labor of themselves and members of their family and the use of the machines, livestock, and land which they themselves own over above any debts they owe.

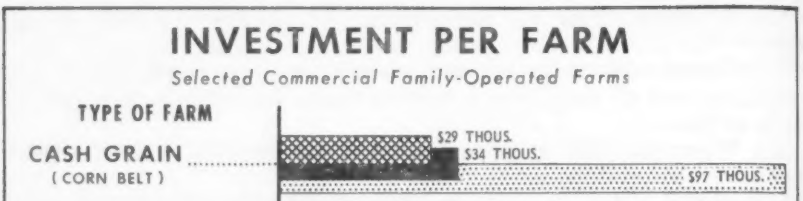
Mr. WHITTEN. Can you roughly estimate over that period of 10 or 12 years what his investment has been? Has the farmer had twice as much investment? You have told us how much bigger the farms have gotten.

Mr. WELLS. Yes. We estimate the total value of productive farm assets increased 40 percent from 1951 to 1959, while the per farm investment, with 900,000 fewer farms in 1959, increased by 65 percent over the same 8 years. Part of the increase is due to more equipment and livestock, but inflation accounts for most of it.

Mr. WHITTEN. In spite of that increase there is an increased investment in the farm.

Mr. WELLS. There is a very substantial increase in investment, especially if you allow for increased land values. We have a table and a chart which illustrates your point.

(The data referred to are as follows:)




INVESTMENT PER FARM

The estimated value of all productive farm assets January 1, 1959, was 40 percent greater than for January 1, 1951, and over 300 percent above the estimated farm asset values for January 1, 1940. The per farm increases were even greater, about 65 and 450 percent, respectively, for the same two periods due to the declining number of farms. The above chart shows comparisons for five selected types of farms, 1940 with 1958. The current dollar value of productive farm assets for the United States as a whole increased by another 11 percent from January 1, 1958, to January 1, 1959. The dollar value of the investment for these commercial-type farms probably increased even more, or by 16 to 20 percent.

Mr. WHITTEN. Assets again is investment required.

*Farm income and productive farm assets per farm, United States, 1940 and 1946–59*

| Year | Number of farms | Realized gross farm income per farm | Production expenses per farm | Realized net income per farm [1] | Value of productive farm assets per farm Jan. 1 | Realized net income per farm as percent of net value of productive farm assets [2] |
|---|---|---|---|---|---|---|
| | *Thousands* | *Dollars* | *Dollars* | *Dollars* | *Dollars* | *Percent* |
| 1940 | 6,350 | 1,738 | 1,063 | 675 | 6,094 | 14.7 |
| 1946 | 5,926 | 5,013 | 2,444 | 2,569 | 12,435 | 23.1 |
| 1947 | 5,871 | 5,851 | 2,904 | 2,947 | 14,154 | 23.2 |
| 1948 | 5,803 | 6,017 | 3,250 | 2,767 | 15,906 | 19.3 |
| 1949 | 5,722 | 5,561 | 3,151 | 2,410 | 17,144 | 15.7 |
| 1950 | 5,648 | 5,751 | 3,417 | 2,334 | 16,979 | 15.5 |
| 1951 | 5,535 | 6,743 | 4,004 | 2,739 | 20,434 | 15.0 |
| 1952 | 5,421 | 6,828 | 4,169 | 2,659 | 23,206 | 12.9 |
| 1953 | 5,308 | 6,644 | 4,025 | 2,619 | 22,946 | 13.0 |
| 1954 | 5,201 | 6,511 | 4,165 | 2,346 | 22,592 | 11.9 |
| 1955 | 5,087 | 6,552 | 4,297 | 2,255 | 23,806 | 10.9 |
| 1956 | 4,969 | 6,968 | 4,547 | 2,421 | 25,055 | 11.2 |
| 1957 | 4,856 | 7,082 | 4,813 | 2,269 | 27,183 | 9.7 |
| 1958 | 4,749 | 8,063 | 5,296 | 2,767 | 29,606 | 10.8 |
| 1959 [3] | 4,637 | 7,977 | 5,613 | 2,364 | 33,455 | 8.8 |

[1] Realized net income per farm represents income within year and is the net realized return to farmer's labor, management, and capital combined. For data on hourly returns to farm operator and family labor, after allowing for 4.75 percent on capital investments, see following table: "Estimated return per hour to all farm labor, 1940 and 1946–57."

[2] Productive farm assets less farm debt (excluding debt to CCC).

[3] Preliminary.

FARM LAND VALUES

Mr. WELLS. Finally, let's look at the index of farmland values. There is one thing I want to call to your attention.

The annual measure we have here in the table is the index as of March 1. From March 1, 1958, to March 1, 1959, the index of farmland values increased from 262 to 282 on our 1912–14 basis, or almost 8 percent within 12 months.

We calculate this index every 4 months. Over the last 8 months, from March 1 to November 1, 1959, the index only increased 5 points, from 282 to 287, or a little less than 2 percent. Meanwhile, reports at recent meetings which I have attended with people representing farm credit institutions would indicate that farmland values have now just about leveled out. We had a surprising increase from March 1, 1958, to March 1, 1959; there has been a slowing down in the last 8 months, and the more recent reports I have been getting from credit agencies are that farmland values are today just about holding level over most of the United States.

I must of course exclude some semi-urban areas such as you find in California and Florida, for instance; but it looks to me as if the increase in farmland values has practically stopped.

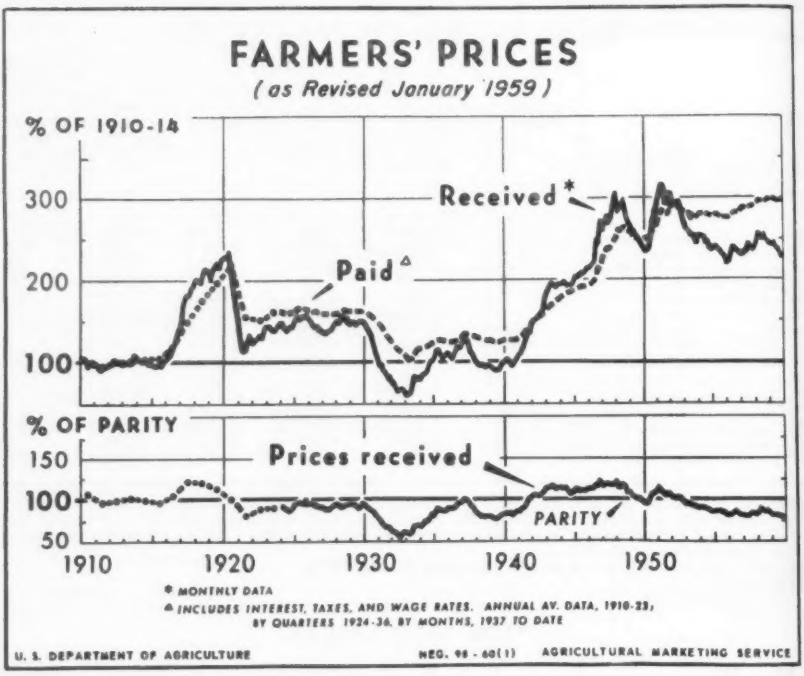
Mr. WHITTEN. Are there any further columns on this particular table?

FARMERS' PRICES

Mr. WELLS. No. I suggest we now go to the charts.

Mr. WHITTEN. All right.

(The first chart referred to is as follows:)




FARMERS' PRICES

The index of prices received by farmers in 1959 averaged 240 (basis 1910–14=100), 4 percent lower than in 1958. Lower prices for meat animals, poultry and eggs, and fruit accounted for most of the decline. Prices received in 1960 are expected to hold at about the level prevailing during the last quarter of 1959.

Prices and cost rates paid by farmers have trended upward during most of the last decade. At 298 (1910–14=100) in 1959, this index was around 2 percent higher than in 1958. Prices paid in 1960 are likely to average slightly higher than in 1959.

Mr. WELLS. This chart compares prices received and prices paid by farmers from 1910 to date.

I simply call your attention to the last few years. Prices paid by farmers have been gradually increasing since 1955. Prices received moved up into early 1958 and then trended down into December 1959. You will note the steady downward trend in the parity ratio as shown in the lower section of the chart. The ratio for January 1960 was 77 percent as compared to 113 percent back at the time of the Korean peak, February 1951. The "parity ratio" is simply the percentage comparison of the prices received and prices paid indexes, with both indexes calculated from the same 1910–14 base.

Mr. WHITTEN. That is still 75 percent of the old parity?

Mr. WELLS. Yes, sir.

## INCOME OF FARM OPERATORS

Mr. WHITTEN. This income that we have got that you show there is the income that the farmer has gotten in the first table and chart. That is income that the farmer got, including the soil bank, and what he got for all his surplus.

Your figure includes any Government payments that he may have gotten for commodities, and also from the soil bank?

Mr. WELLS. That is right.

Mr. WHITTEN. So, from pure farm sources, and when I say that, farm production, the soil bank; in 1959, what was this?

Mr. WELLS. About $681 million in Government payments are included, as shown in this table.

(The table referred to follows:)

*Government payments to farmers 1939 and 1946–59*

[In millions of dollars]

| Year | Conservation program | Sugar Act | Wool program | Soil bank program | Other | Great Plains conservation | Total |
|---|---|---|---|---|---|---|---|
| 1939 | 526 | 28 | ---------- | ---------- | [1] 209 | ---------- | 763 |
| 1946 | 285 | 31 | ---------- | ---------- | [2] 456 | ---------- | 772 |
| 1947 | 277 | 37 | ---------- | ---------- | ---------- | ---------- | 314 |
| 1948 | 218 | 39 | ---------- | ---------- | ---------- | ---------- | 257 |
| 1949 | 155 | 30 | ---------- | ---------- | ---------- | ---------- | 185 |
| 1950 | 246 | 37 | ---------- | ---------- | ---------- | ---------- | 283 |
| 1951 | 246 | 40 | ---------- | ---------- | ---------- | ---------- | 286 |
| 1952 | 242 | 33 | ---------- | ---------- | ---------- | ---------- | 275 |
| 1953 | 181 | 32 | ---------- | ---------- | ---------- | ---------- | 213 |
| 1954 | 217 | 40 | ---------- | ---------- | ---------- | ---------- | 257 |
| 1955 | 188 | 41 | ---------- | ---------- | ---------- | ---------- | 229 |
| 1956 | 220 | 37 | 54 | 243 | ---------- | ---------- | 554 |
| 1957 | 230 | 32 | 53 | 700 | ---------- | ---------- | 1,015 |
| 1958 | 214 | 45 | 14 | 815 | ---------- | 1 | 1,089 |
| 1959 [3] | 228 | 44 | 82 | 322 | ---------- | 5 | 681 |

[1] Price Adjustment Act of 1938, 201,000,000; cotton price adjustment, 8,000,000.
[2] Production payments: Dairy, 401,000,000; beef, 22,000,000; sheep and lambs, 33,000,000.
[3] Preliminary.

Source: Agricultural Marketing Service, Feb. 3, 1960.

Mr. WHITTEN. And with soil bank payments farm income remains low.

Mr. WELLS. We estimate soil bank payments at $322 million for 1959.

Mr. WHITTEN. It struck me that it would be larger than that if you included all those things.

Mr. WELLS. Soil bank payments were $815 million in 1958 when the program included the "acreage reserve" feature which was not in operation in 1959. Also, we do not count Commodity Credit loans to farmers as "Government payments."

Mr. WHITTEN. That is not from sales in the marketplace. That includes soil bank and all the rest?

Mr. WELLS. You are now talking about realized gross farm income as shown on this farm income chart. Yes, this includes, first of all, cash sales, and our figure for cash sales also covers commodities placed under nonrecourse loans by the Commodity Credit Corporation since this in effect becomes a sale to the Government unless prices go up.

In addition to that, it includes Government payments. It also includes the value of commodities produced and consumed in the farm home and an allowance for the rent of the farmhouse.

Mr. SANTANGELO. In 1958 you have a realized net income of $13.1 billion. That was the last year that we had the acreage reserve program of about $700 million. It looks like $750 million. Do we include that $750 million in that $13 billion?

Mr. WELLS. Yes. Our farm income estimates include $815 million soil bank payments in 1958 but only $322 million for 1959.

Mr. SANTANGELO. That was a supplemental.

Mr. WELLS. In other words, soil bank payments dropped almost $500 million when the acreage reserve part of the program was discontinued.

Mr. WHITTEN. I asked you about the change in acreage, and conservation reserve during that period, but your figures do represent all of them?

Mr. WELLS. Yes.

Mr. WHITTEN. I am not trying to run your own tabulations, but agricultural exports would be readily understandable if you said "including Public Law 480, realized net income, including Government payments," because that could lead to a completely erroneous conclusion by someone not familiar with it, if you don't put it in there.

Mr. WELLS. I realize your point and we do endeavor to introduce some qualifying words as footnotes. Yet, inevitably our main economic indicators get short titles.

Mr. MICHEL. Income of farm operators from farming?

Mr. WELLS. Yes.

Mr. MICHEL. That includes tenant farmers. Does it include owners who are not operators?

Mr. WELLS. It relates only to farm operators. This is looking at the farm operators as businessmen—at what they get from the farming part of the operation. It does not include landlords' income. It does not include farm operators' earnings from nonfarm employment. It does subtract rent and wages paid farm labor as production expenses.

(Tables showing farm income data, return per hour, and total of farm and nonfarm income are as follows:)

*Farm income data: United States, 1939, 1946–59*

TOTAL FARM INCOME

| Item | Unit | 1939 | 1946 | 1947 | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 [1] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cash receipts from farm marketings. | Million dollars | 7,872 | 24,802 | 29,620 | 30,227 | 27,828 | 28,512 | 32,958 | 32,632 | 31,126 | 29,953 | 29,556 | 30,564 | 29,824 | 33,560 | 32,777 |
| Realized gross farm income [2] | do | 10,556 | 29,706 | 34,352 | 34,914 | 31,821 | 32,482 | 37,323 | 37,016 | 35,265 | 33,865 | 33,332 | 34,626 | 34,389 | 38,291 | 36,991 |
| Production expenses | do | 6,162 | 14,483 | 17,048 | 18,857 | 18,032 | 19,297 | 22,165 | 22,600 | 21,366 | 21,664 | 21,862 | 22,594 | 23,371 | 25,152 | 26,030 |
| Realized net income of farm operators. [3] | do | 4,394 | 15,223 | 17,304 | 16,057 | 13,789 | 13,185 | 15,158 | 14,416 | 13,899 | 12,201 | 11,470 | 12,032 | 11,018 | 13,139 | 10,961 |
| Total net income of farm operators. [4] | do | 4,489 | 15,252 | 15,544 | 17,789 | 12,926 | 14,000 | 16,334 | 15,337 | 13,278 | 12,691 | 11,767 | 11,617 | 11,780 | 14,198 | 11,808 |
| Net income to persons on farms from farming. [5] | do | 5,189 | 17,050 | 17,471 | 19,810 | 14,711 | 15,696 | 18,143 | 17,262 | 15,111 | 14,447 | 13,505 | 13,358 | 13,556 | 16,006 | 13,619 |
| Income to persons on farms from all sources. [6] | do | 7,689 | 21,350 | 22,371 | 24,910 | 19,911 | 20,996 | 23,743 | 23,362 | 21,111 | 20,247 | 19,805 | 20,058 | 20,156 | 22,306 | 20,319 |

NUMBER OF FARMS AND INCOME PER FARM

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of farms | Thousands | 6,441 | 5,926 | 5,871 | 5,803 | 5,722 | 5,648 | 5,535 | 5,421 | 5,308 | 5,201 | 5,087 | 4,969 | 4,856 | 4,749 | 4,637 |
| Realized net income per farm | Dollars | 682 | 2,569 | 2,947 | 2,767 | 2,410 | 2,334 | 2,739 | 2,659 | 2,619 | 2,346 | 2,255 | 2,421 | 2,269 | 2,767 | 2,364 |
| Total net income per farm | do | 697 | 2,574 | 2,648 | 3,065 | 2,259 | 2,479 | 2,951 | 2,829 | 2,502 | 2,440 | 2,313 | 2,338 | 2,426 | 2,990 | 2,547 |
| Net productive assets per farm. [7] | do | | 11,136 | 12,723 | 14,321 | 15,361 | 15,067 | 18,212 | 20,623 | 20,139 | 19,766 | 20,739 | 21,634 | 23,497 | 25,609 | 31,091 |

FARM POPULATION AND INCOME PER PERSON

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Farm population | Thousands | 30,840 | 26,483 | 27,124 | 25,903 | 25,954 | 25,058 | 24,160 | 24,283 | 22,679 | 22,099 | 22,438 | 22,362 | 21,606 | 21,388 | 21,172 |
| Income per person on farms: | | | | | | | | | | | | | | | | |
| From agriculture | Dollars | 168 | 644 | 644 | 765 | 567 | 626 | 751 | 711 | 666 | 654 | 602 | 597 | 627 | 748 | 643 |
| From all sources | do | 249 | 806 | 825 | 962 | 767 | 838 | 983 | 962 | 931 | 916 | 883 | 897 | 933 | 1,043 | 960 |

[1] Preliminary estimates. Revised estimates based on more complete information will be published in July.

[2] Cash receipts from farm marketings, Government payments, value of home-produced food and fuel, and rental value of farm dwellings.

[3] Realized gross income minus production expenses.

[4] This series is total gross farm income minus production expenses. Total gross farm income is realized gross income plus value of change in farm inventory.

[5] Total net income of farm operators, plus farm wages of farmworkers living on farms.

[6] Income to persons on farms from farming plus income to persons on farms from nonfarm sources.

[7] Value of farm real estate less value of dwellings, crops held for feed, livestock, machinery, and equipment less 60 percent of the automobile and demand deposits used for production. Farm debt has been deducted from the value of productive assets.

Source: Agricultural Marketing Service, Feb. 9, 1960.

*Farm and nonfarm income per person, United States, 1939, 1946–59*

| Year | Per person income to people on farms | | Per person income to people not on farms from all sources | Year | Per person income to people on farms | | Per person income to people not on farms from all sources |
|---|---|---|---|---|---|---|---|
| | From farming | From all sources | | | From farming | From all sources | |
| 1939 | $168 | $249 | $626 | 1953 | $666 | $931 | $1,902 |
| 1946 | 644 | 806 | 1,295 | 1954 | 654 | 916 | 1,852 |
| 1947 | 644 | 825 | 1,394 | 1955 | 602 | 883 | 1,979 |
| 1948 | 765 | 962 | 1,534 | 1956 | 597 | 897 | 2,074 |
| 1949 | 567 | 767 | 1,511 | 1957 | 627 | 933 | 2,116 |
| 1950 | 626 | 838 | 1,585 | 1958 | 748 | 1,043 | 2,073 |
| 1951 | 751 | 983 | 1,763 | 1959 [1] | 643 | 960 | 2,202 |
| 1952 | 711 | 962 | 1,849 | | | | |

[1] Preliminary.

Source: Agricultural Marketing Service, Feb. 9, 1960.

*Estimated return per hour to all farm labor*

| Year | Total realized return to all farm labor and capital [1] | Allowance for capital at 4¾ percent [2] | Total return to labor and management [3] | Total man-hours required for agricultural production [4] | Realized return per hour to all farm labor and management [5] |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| | *Millions* | *Millions* | *Millions* | *Million hours* | |
| 1929 | $8,982 | $2,997 | $5,985 | 23,158 | $0.258 |
| 1930 | 6,908 | 2,955 | 3,953 | 22,921 | .172 |
| 1931 | 4,775 | 2,603 | 2,172 | 23,427 | .093 |
| 1932 | 3,419 | 2,179 | 1,240 | 22,605 | .055 |
| 1933 | 4,209 | 1,819 | 2,390 | 22,554 | .106 |
| 1934 | 5,407 | 1,926 | 3,481 | 20,232 | .172 |
| 1935 | 6,261 | 1,991 | 4,270 | 21,052 | .203 |
| 1936 | 6,889 | 2,138 | 4,751 | 20,440 | .232 |
| 1937 | 7,080 | 2,203 | 4,877 | 22,097 | .221 |
| 1938 | 6,047 | 2,206 | 3,841 | 20,577 | .187 |
| 1939 | 6,247 | 2,140 | 4,107 | 20,675 | .199 |
| 1940 | 6,245 | 2,157 | 4,088 | 20,467 | .200 |
| 1941 | 8,553 | 2,241 | 6,312 | 20,043 | .315 |
| 1942 | 11,831 | 2,566 | 9,265 | 20,581 | .450 |
| 1943 | 15,386 | 3,013 | 12,373 | 20,298 | .610 |
| 1944 | 15,871 | 3,404 | 12,467 | 20,164 | .618 |
| 1945 | 16,604 | 3,724 | 12,880 | 18,841 | .684 |
| 1946 | 19,571 | 4,051 | 15,520 | 18,082 | .858 |
| 1947 | 22,011 | 4,559 | 17,452 | 17,196 | 1.010 |
| 1948 | 20,956 | 5,046 | 15,910 | 16,833 | .945 |
| 1949 | 18,306 | 5,304 | 13,002 | 16,201 | .803 |
| 1950 | 17,703 | 5,203 | 12,500 | 15,137 | .826 |
| 1951 | 20,022 | 6,062 | 13,960 | 15,170 | .920 |
| 1952 | 19,413 | 6,729 | 12,684 | 14,425 | .879 |
| 1953 | 18,696 | 6,546 | 12,150 | 13,897 | .874 |
| 1954 | 16,884 | 6,327 | 10,557 | 13,107 | .805 |
| 1955 | 16,118 | 6,507 | 9,611 | 12,751 | .754 |
| 1956 | 16,795 | 6,619 | 10,176 | 12,132 | .839 |
| 1957 | 15,814 | 6,988 | 8,826 | 11,379 | .776 |
| 1958 | 18,214 | 7,440 | 10,774 | 11,103 | .970 |
| 1959 [6] | 16,073 | 8,160 | 7,913 | 11,054 | .716 |

[1] Includes realized net income of farm operators, wages to hired farm labor, farm mortgage interest, rent to nonfarm landlords and short-term interest.

[2] 4¾ percent of current value of farm real estate, inventory value of crops and livestock, inventory value of motor vehicles and machinery, excluding 60 percent of the automobile, and an allowance for working capital. This rate approximates the interest rate on farm-mortgage debt in recent years.

[3] Col. (1) minus col. (2).

[4] Labor requirements in terms of the number of man-hours required for an average adult male worker to perform the various jobs. Revised beginning 1939.

[5] Col. (3) divided by col. (4).

[6] Preliminary.

Source: Agricultural Marketing Service, Feb. 9, 1960.

Mr. MICHEL. So if in my State, where I am getting some figures showing any number of farmers with only 30 percent and 40 percent owner-operators, we have got excluded 50 percent and 60 percent of some of the farms by counties, if they are not included in those figures?

Mr. WELLS. We have all the farm operators, but a landlord who is not an operator is not in here, and nonfarm work is not in here.

Mr. MICHEL. So that the owner, without being an operator, may be off his farm as a landholder, and he is not reflected in these figures?

Mr. WELLS. It is charged in rent, because the tenant must pay rent; and he pays cash or is on a share basis, so it is charged as a deduction.

Mr. MICHEL. I would have to say on this matter of exports, by way of observation, that one doesn't get the true picture from this chart as to whether or not this is through the normal commercial chain of private industry or whether this is the big, heavy hand of Government?

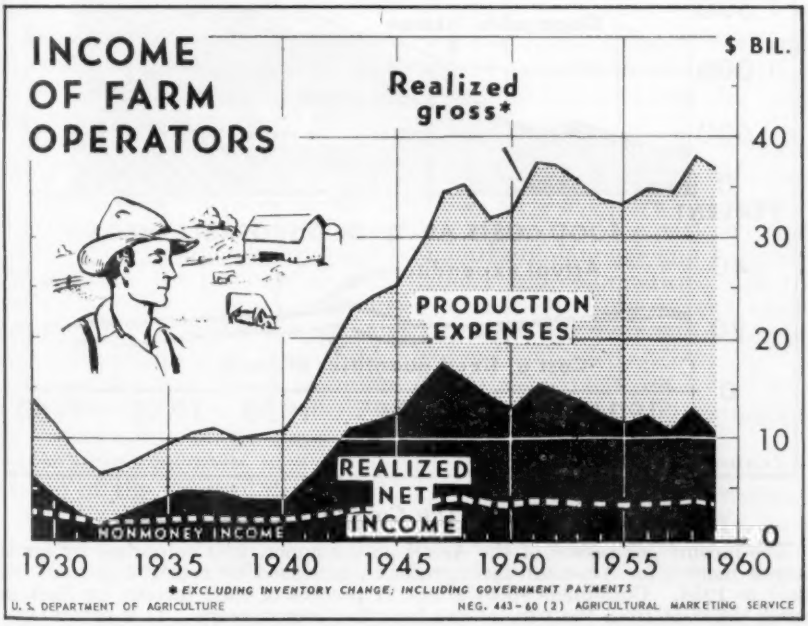
Mr. WELLS. We have a later chart and tables that do show the role of the Government versus the normal commercial market.

(The information referred to appears on pp. 95–97.)

Mr. MICHEL. I am surprised to see, by your total figures there, that it is so constant a figure since 1951 on your exports.

Mr. WELLS. We will come to the export chart later. The top line in this chart shows the realized gross income of farm operators.

(The chart referred to is as follows:)



### Income of Farm Operators

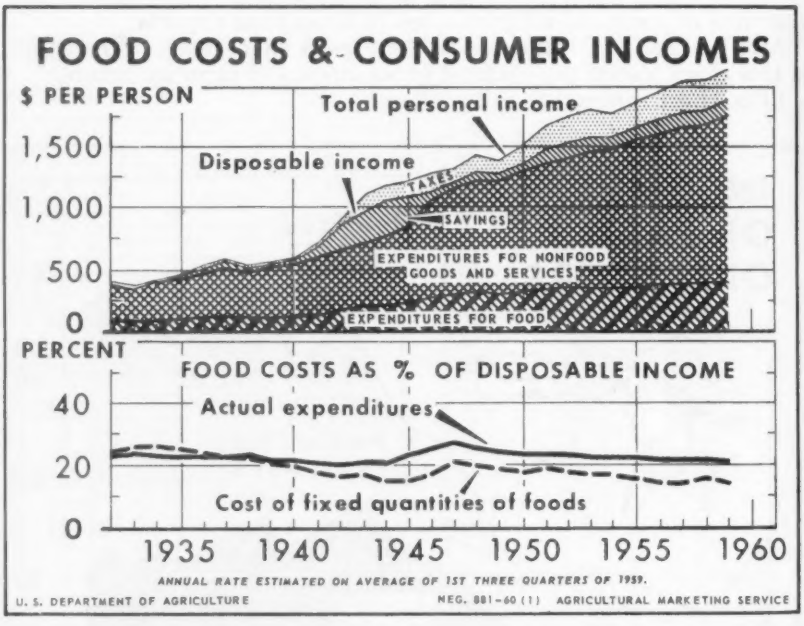
Realized gross income of farm operators in 1959 at $37 billion was down about 3 percent from the record high level of 1958. Production expenses at $26 billion were up 3 percent from 1958. As a result, realized net income of farm operators at $11 billion was down 16 percent from 1958.

Mr. Wells. This realized gross includes sales, Government payments, commodities used in the farm home, and so forth, and we subtract production expenses to get our estimated realized net income (the bottom, solid black section of the chart on p. 83). There has been a gradual downtrend in realized net income since the peak in 1947, with tendency toward leveling off at the $10 or $11 billion level.

The bottom portion also shows the nonmoney part. In other words, the value of what farm operators produce for home use and the allowance for the rental value of farm homes which we have to include to make the figures comparable with nonfarm income estimates.

### Food Costs and Consumer Incomes

On this next chart we move to the food costs and consumer incomes. (The chart referred to is as follows:)




### Food Costs and Consumer Incomes

The income per person of the American consumer, who comprises by far the largest market for American farm products, increased by nearly 4 percent from 1957 to 1958. Consumers spent about 21 percent of their income for food, not much different from the percentages for other recent years. This percentage is slightly below that prior to World War II, even though food consumption per person is about 13 percent higher and consumers are purchasing more marketing services with their food. If consumers were purchasing the same quantities and qualities of food per person as in the late 1930's, food expenditures would account for only about 15 percent of disposable income.

Mr. WELLS. The upper two lines show the flow of actual dollars per capita to the American people before and after income taxes are taken out.

In 1959 the average dollars per capita going to people averaged well over $2,000. The first dotted section of the chart subtracts income taxes while the remaining three sections measure what we call "disposable" consumer income and the way it is divided between food expenditures, nonfood expenditures and savings.

The lower part of the chart, the heavy black line, indicates the percentage of disposable income the average American consumer puts out for his food, currently about 21 percent as compared with a 23 percent average for 1935–39, about 27 percent at the end of World War II and 23 percent in 1951.

The heavy broken line in the lower part of the chart indicates the percentage of disposable income which it would have taken had people bought exactly the same quantities of foods prepared in the same manner as they did in 1935–39.

Mr. WHITTEN. If consumer prices in food remained constant, it means the reduced prices to farmers have not been passed on to the consumer. I think it is generally accepted.

Mr. WELLS. To a large extent that is true.

I simply want to point out that the flow of income in the United States has been almost steadily increasing and that the three recent recessions have been nothing more than a leveling out of average per capita disposable income in 1949, 1954, and 1958. You see the effect of these recessions as holding constant the consumer income level, rather than a real drop.

As a matter of fact, I think average per capita disposable income has reached a level where small changes have little immediate effect on the food market even though consumer incomes are the most important long-run source of demand.

Mr. SANTANGELO. With respect to the food costs, I would like to get, if you have such information, a list of the commodities which are being sold in grocery stores; and I would like to get the average prices at which they have been selling in these stores over the past couple of years. For example, let us take the months of January and February and compare the prices of grocery articles and commodities with the prices at which these commodities were being sold in the stores throughout the United States as of February last year and February the year before.

Do you have any such records?

Mr. WELLS. We could get the Bureau of Labor Statistics quotations. You want a few of the main commodities?

Mr. SANTANGELO. I was trying to get some information from Mr. Barton of the Market Research Corp. Do you use his information?

Mr. WELLS. I know them, and I know Mr. Barton. We have used some of their data. They measure market movements and prices of specific goods. Most of their business is with commercial concerns.

Mr. SANTANGELO. Since he has gone into the specific goods in urban areas, I was wondering whether you had some of his reports.

Mr. WELLS. I do not have them. What the Market Research Corp. of America does is to maintain a sample of typical families over the United States, who keep a food diary, showing what they purchase

each week, and commercial concerns who want to know what people are buying can buy the price and quantity data both for total purchases and for their own branded product.

Mr. SANTANGELO. He reports the prices at which they are sold, so you have an up-to-date comparative cost. I frankly have written to Mr. Barton and tried to get this information, but I don't want to pay the expenses of getting that information; and I thought you might have it.

Mr. WELLS. His prices are substantially in agreement with the average prices reported by the Bureau of Labor Statistics.

Mr. SANTANGELO. I don't know of anyone at the Bureau of Labor Statistics using it, but I know that his list has the economy for a good many commercial houses, and I would like to get it if you have it, and if you don't have it, I would like you to get it for me, so that we can understand what the specific commodities are selling for this year, as compared with last year.

Mr. WELLS. I don't have it.

### ECONOMIC SIZE FARMING UNITS

Mr. HORAN. You may recall that we attempted to have Dr. Sherman Johnson prepare what constituted an economic unit in farming, and we eventually got the Information Bulletin No. 380, and that was about 3 years ago, I think.

Mr. WELLS. Yes, sir.

Mr. HORAN. When I was out in Wenatchee, my hometown, last fall, I found them doing some tremendous studies in economics, the county agent, and they were assisted by various elements of government on this very thing of what constituted an economic unit. They were doing other studies, too, and I made the remark, and I have not followed up on it as of now, but I wonder if they undoubtedly have made contact with you?

Mr. WELLS. I am no longer in charge of farm management and land economics, Mr. Horan. However, I can well understand how the people in your area have a very distinct interest in this problem, with all the new land which they have to bring into use.

Mr. HORAN. Will you alert Dr. Johnson when we get into that area, and have him enlighten us on that, Charley? I wondered when we have research, if we could have Dr. Johnson see if he has anything new on the cost of getting into farming, and what constitutes an economic unit.

It has a bearing on all of our loan programs, a very definite bearing.

Mr. WELLS. We will do that.

(Dr. Johnson's testimony appears on p. 233.)

### RELATIVE COST OF FOOD

Mr. WELLS. This chart shows quantities of foods that the average wages for 1 hour of factory labor would buy in the years 1929, 1939, 1958, and 1959. The story, I think, tells itself. Average wages and the standard of living continue to go up each year, and the relative cost of food continues to come down.

(The chart referred to is as follows:)

QUANTITIES OF FOODS ONE HOUR OF FACTORY LABOR WILL BUY
1959
1958
1939
1929
BREAD
11.3 loaves
1.0 loaves
8.0 loaves
6.4 loaves
STEAK
2.1 lb.
2.0 lb.
1.8 lb.
1.2 lb.
MILK*
17.6 pints
16.8 pints
10.4 pints
7.8 pints
BUTTER
2.9 lb.
2.9 lb.
1.9 lb.
1.0 lb.
BACON
3.3 lb.
2.7 lb.
2.0 lb.
1.3 lb.
EGGS
4.2 doz.
3.5 doz.
2.0 doz.
1.1 doz.
POTATOES
35.2 lb.
33.8 lb.
25.3 lb.
17.7 lb.
ORANGES
3.3 doz.
2.8 doz.
2.2 doz.
1.3 doz.
*FRESH DELIVERED LENGTH OF BARS ON POUND BASIS
U. S. DEPARTMENT OF AGRICULTURE
NEG. 99-60 (1) AGRICULTURAL MARKETING SERVICE

QUANTITIES OF FOOD 1 HOUR OF FACTORY LABOR WILL BUY

When food prices are measured relative to hourly wage rates, most staple food items represent very good buys. The quantities of food 1 hour of factory labor would buy in 1929, 1939, 1958, and 1959, as estimated from hourly wages of factory labor (excluding fringe benefits) and average retail food prices are indicated in the above chart. One hour's factory labor would buy more of each of these foods in 1939 than in 1929, more in 1958 than in 1939 and except for butter more in 1959 than in 1958. The 1959 figure for butter was the same as for 1958.

Mr. SANTANGELO. Do you have a comparison as to what a service laborer or any person belonging to the service industries could buy in those years, as compared to what he could buy today? You have given us a comparison of what a segment of labor will buy, and, so far as the hourly wages are concerned; but what about that large area of people not covered by minimum wages, and who work for services and which fluctuates?

Mr. WELLS. We have figures on wages of construction workers which run higher than factory workers——

Mr. SANTANGELO. Which is an organized segment, which is getting pretty high wages.

Mr. WELLS. And then there is a series on wages of workers in the retail trades.

Mr. SANTANGELO. Do you have those?

Mr. WELLS. I can get them.

Mr. SANTANGELO. Will you get it as a chart, as to what they can buy today with 1 hour of labor, and what they could have bought in those years?

Mr. WELLS. Yes, we will prepare a table showing the purchasing power of both factory and retail wages in terms of selected foods so you can compare them directly. As a rule, of course, the wages of people in the retail stores are lower than those of factory workers, you realize.

Mr. SANTANGELO. Much lower.

Mr. WELLS. Year by year the percentage increases might be usually somewhat comparable.

Mr. SANTANGELO. From my experience they are not. The fellows from the factories have had their salaries or wages increased by 500 percent, whereas the others have increased 10 or 15 percent. You cannot compare a construction man's wages with them; a man who makes $5 an hour.

Mr. WELLS. Construction is the highest of the lot.

Mr. SANTANGELO. As compared to a barber, for example.

(The table referred to follows:)

*Quantities of foods hourly wages of factory and retail trade workers will buy, 1939 and 1959*

| Item | Unit | Factory labor | | Retail trade workers | |
|---|---|---|---|---|---|
| | | 1939 | 1959 | 1939 | 1959 |
| | | *Number* | *Number* | *Number* | *Number* |
| Bread | Pound | 8.0 | 11.3 | 6.9 | 8.9 |
| Round steak | do | 1.8 | 2.1 | 1.5 | 1.6 |
| Milk | Pint | 10.4 | 17.6 | 8.9 | 14.0 |
| Butter | Pound | 1.9 | 2.9 | 1.7 | 2.4 |
| Bacon | do | 2.0 | 3.3 | 1.7 | 2.6 |
| Eggs | Dozen | 2.0 | 4.2 | 1.7 | 3.3 |
| Potatoes | Pound | 25.3 | 35.2 | 21.7 | 27.9 |
| Oranges | Dozen | 2.2 | 3.3 | 1.9 | 2.6 |

NOTE.—Based on retail price and wage-rate data compiled by Bureau of Labor statistics. Average hourly earnings of factory workers were 63.3 cents in 1939 and $2.22 in 1959. Average hourly earnings of retail-trade workers were 54.2 cents in 1939 and $1.76 in 1959.

Mr. WELLS. This chart adds all food up, and shows the average food purchases of a family of three in the retail market took 700-odd hours factory labor 1947–49 while today it takes about 525 hours, which indicates that in 1959 the average worker could buy the same quantity of food for 25 percent less work than in 1947–49.

(The chart referred to is as follows:)

LABOR REQUIRED TO BUY FARM FOOD MARKET BASKET

Wage earners had to work only about three-fourths as many hours to pay for the market basket of farm foods in 1959 as in 1947-49, although the dollar cost of these foods had risen 11 percent. Fewer hours were required because wage rates had increased and farmers' prices had declined since 1947–49. The farm value (the farmer's return from the market basket foods) was down both in terms of dollars and hours of wage labor. But the hours required to pay the marketing charges (marketing spread) also had decreased 12 percent, though dollar marketing charges had risen 35 percent.

Mr. SANTANGELO. I wonder what you would do in 1930 to get that same kind of a basket.

Mr. WELLS. It was still higher. Wages are today about four times what they were in 1930, food prices have about doubled.

FARMERS' SHARE OF RETAIL FOOD DOLLAR

Mr. WELLS. This chart shows the division of the average retail food dollar between the farmer and the various marketing agencies.

(The chart referred to is as follows:)

FARMER'S SHARE AND MARKETING MARGIN OF RETAIL FOOD DOLLAR

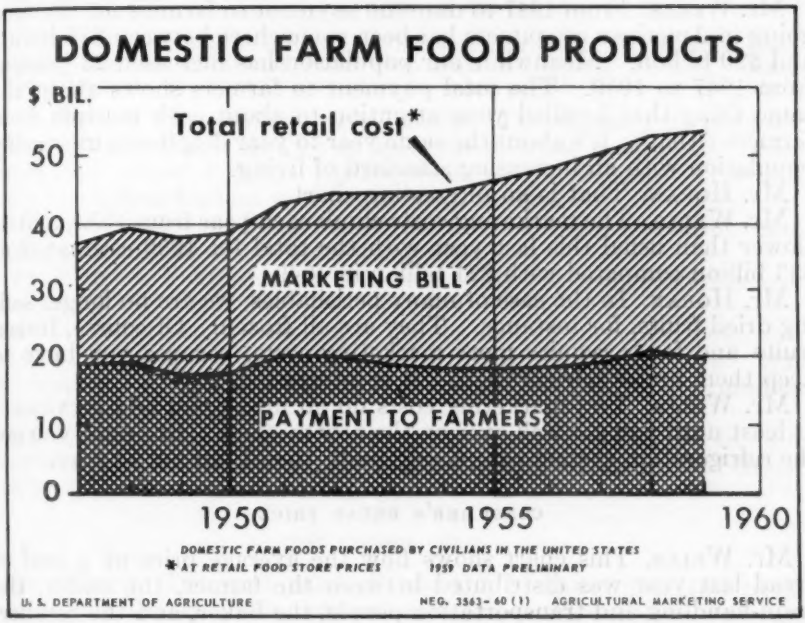
Charges for processing and distributing a "market basket" of foods produced on U.S. farms was 62 percent of the retail value in 1959. From 1951 to early 1956, the farmer's share gradually declined to 40 cents where it held for 3 years before dropping to 38 cents in 1959. In 1960, marketing charges may be slightly higher and the farmer's share slightly lower than in 1959.

Mr. WELLS. This breaks it down between what the farmer gets and what the marketing agency gets, and you will notice the steady downward trend from 1951 to date in the farmer's share. The farmer's share is 38 cents for the last calendar year, and I believe our last figure was 37 cents for November and December 1959.

THE FARM MARKETING BILL

Mr. WELLS. This chart shows the total retail cost of food, assuming all of it moved through retail. Some of it of course moves to institutions and restaurants at wholesale prices, and doesn't go to retail food stores.

(The chart referred to is as follows:)




## Domestic Farm Food Products

The bill for marketing farm-produced food products increased in 1959 as it has each year since 1938. At $33.3 billion (preliminary estimate), it was about 4 percent higher than in 1958. Payments farmers received for the equivalent farm products was $19.8 billion, about 5 percent below those of 1958.

Comparing 1959 with 1947, the farm food marketing bill has increased from $17.8 billion to $33.3 billion or by 87 percent, while payments to farmers for the equivalent farm products have increased by only about 6 percent ($18.7 billion to $19.8 billion). Over the same period, total U.S. population increased about 23 percent.

*Retail cost, payment to farmers, and marketing bill for farm food products purchased by domestic civilian consumers, United States, 1947–59*

[In billions of dollars]

| Year | Retail cost [1] | Payment to farmers [2] | Farm-retail marketing bill [3] | Year | Retail cost [1] | Payment to farmers [2] | Farm-retail marketing bill [3] |
|---|---|---|---|---|---|---|---|
| 1947 | 36.5 | 18.7 | 17.8 | 1954 | 44.9 | 18.3 | 26.6 |
| 1948 | 39.0 | 19.2 | 19.8 | 1955 | 46.2 | 18.3 | 27.9 |
| 1949 | 37.9 | 17.1 | 20.8 | 1956 | 48.3 | 18.7 | 29.6 |
| 1950 | 38.9 | 17.7 | 21.2 | 1957 | 50.4 | 19.5 | 30.9 |
| 1951 | 43.0 | 20.2 | 22.8 | 1958 | 52.8 | 20.8 | 32.0 |
| 1952 | 44.5 | 20.1 | 24.4 | 1959 [4] | 53.1 | 19.8 | 33.3 |
| 1953 | 44.6 | 19.0 | 25.6 | | | | |

[1] Estimated cost at retail-store prices of all domestic food products sold by farmers and bought by civilian consumers in this country. Farm food products sold in the form of meals are valued at what the food would have cost in retail food stores.

[2] Payment to farmers for equivalent farm products, adjusted to eliminate imputed value of nonfood byproducts.

[3] Difference between retail cost and payment to farmers.

[4] Preliminary.

Mr. WELLS. From 1947 to date the payment to farmers for the food going to American consumers has been somewhere between $18 billion and $20 billion. Meanwhile our population has increased 23 percent from 1947 to 1959. The total payment to farmers shows about the same thing that I called your attention to about cash receipts from farmers—that is, it's about the same year to year despite an increasing population with an increasing standard of living.

Mr. HORAN. That is an interesting chart.

Mr. WELLS. The marketing costs climb each year from 1954, a little slower than usual this last year with the total for 1959 estimated at $33 billion compared with $21 billion in 1949.

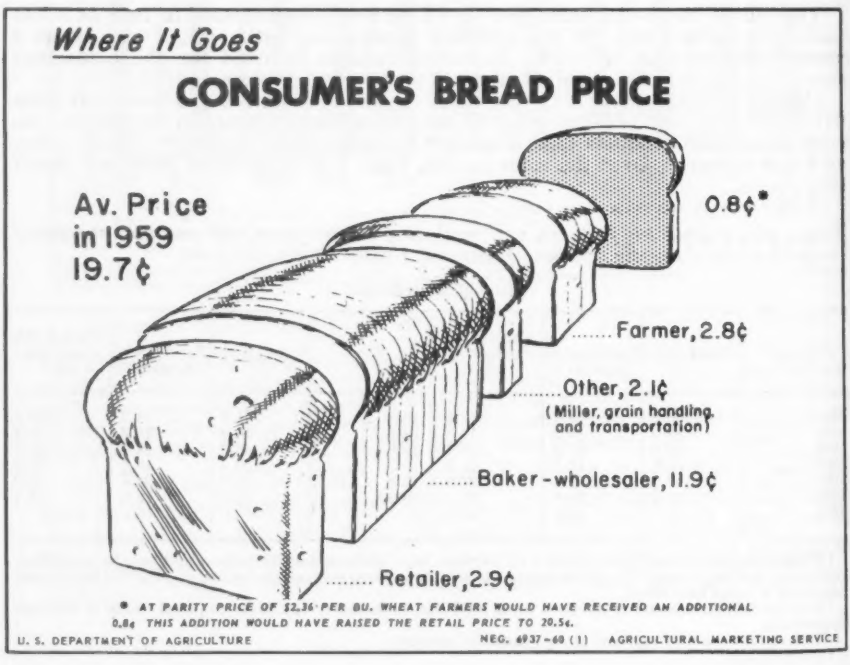
Mr. HORAN. In the case of many perishables, we are no longer selling dried fruits, for instance. They are all frozen. Of course, frozen fruits and foods require more marketing costs, because you have to keep them under refrigeration. It is interesting.

Mr. WELLS. Yes; marketing costs do go up as you add services—at least until you get well over on the new method. But once you get the refrigeration system completely built, then I am not so sure.

CONSUMER'S BREAD PRICE

Mr. WELLS. This chart shows how the average price of a loaf of bread last year was distributed between the farmer, the miller, the grain-handling and transportation people, the baker, and the retailer.

(The chart referred to is as follows:)


Where It Goes
CONSUMER'S BREAD PRICE
Av. Price in 1959 19.7¢
0.8¢*
Farmer, 2.8¢
Other, 2.1¢
(Miller, grain handling and transportation)
Baker - wholesaler, 11.9¢
Retailer, 2.9¢
* AT PARITY PRICE OF $2.36 PER BU. WHEAT FARMERS WOULD HAVE RECEIVED AN ADDITIONAL 0.8¢ THIS ADDITION WOULD HAVE RAISED THE RETAIL PRICE TO 20.5¢.
U. S. DEPARTMENT OF AGRICULTURE
NEG. 6937-60 (1) AGRICULTURAL MARKETING SERVICE

CONSUMER'S BREAD PRICE

Urban consumers paid an average of 19.7 cents per pound loaf of white bread in 1958. For the wheat and other farm produced ingredients used farmers received 2.8 cents, or about 14 percent of the retail price.

Mr. HORAN. You have it wrong there. The farmer gets the heel.

Mr. WELLS. The "heel" you refer to is what would have been added had wheat brought parity prices to the farmer. This is a chart you asked for last year brought up to date.

Mr. SANTANGELO. Your chart shows that transportation and handling is only about 2 cents of the total cost.

Mr. WELLS. That is for milling, including the transportation and handling of the wheat from the farm to the flour mill.

Mr. SANTANGELO. I hear many people making speeches about how the cost of transportation and labor is taking the biggest slice. But that confirms what I thought, that the wholesale bakers and retailers obtain the greatest slice.

Mr. WELLS. This chart refers to the loaf of bread and not to flour as such. You are right, sir; 60 percent of the retail price of bread goes to the baker-wholesaler function.

THE COTTON SHIRT

Mr. WELLS. The next chart shows the breakdown of the retail price of an ordinary good grade cotton business shirt such as we wear. In 1959 the farm value of the cotton in a $3.95 or $4 business shirt was 29 cents.

(The chart referred to is as follows:)

WHAT FARMER GETS FOR COTTON IN BUSINESS SHIRT
Retail Price $3.97
Farmer's Share 29¢
DATA BASED ON 1959 PRICES
U. S. DEPARTMENT OF AGRICULTURE
NEG. 4775-60 (1) AGRICULTURAL MARKETING SERVICE

WHAT FARMER GETS FOR A COTTON BUSINESS SHIRT

A typical cotton business shirt sold for around $3.97 at retail in 1959. The farm value of the amount of cotton required to make this shirt was about 29 cents, or around 7 percent of the retail price.

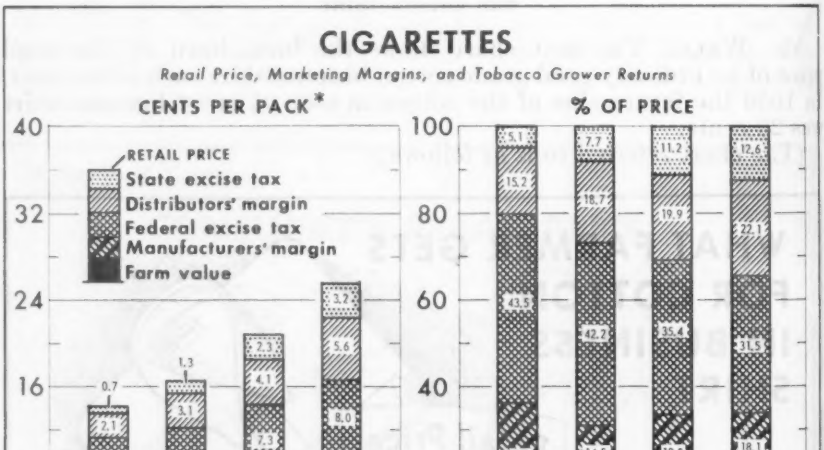
Mr. WHITTEN. The cotton producers were firmly convinced that they needed to take reduced prices for cotton, so as to hold up the situation on certain synthetics. There was some kind of scale, the gray goods scale, and the farmer is getting $18 per bale less for his cotton, and the mill is charging $25 more for the bale.

In other words, they are not always taking up the reduction that the farmers took in prices, but they have added from $18 to $25 to the consumer's cost.

DISTRIBUTION OF RETAIL CIGARETTE PRICE

Mr. WELLS. This chart shows a breakdown of the retail cigarette dollar, and indicates what part the farmer gets, what part the manufacturer gets, what part Uncle Sam gets, and what part the State governments get.

(The chart referred to is as follows:)




CIGARETTES

In 1958, farmers got about 16 cents out of each dollar spent at retail for cigarettes, manufacturers and distributors got 40 cents, and Federal and State excise taxes accounted for 44 cents.

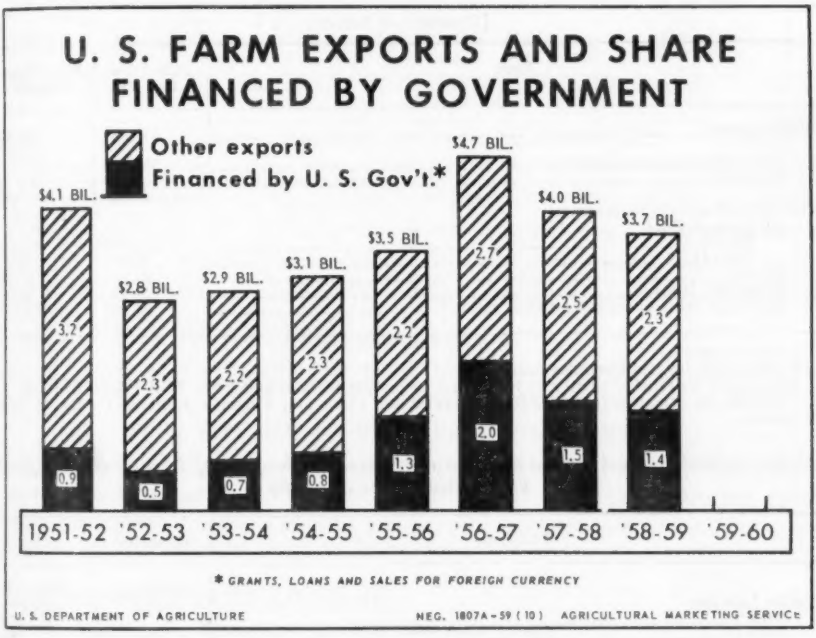
Mr. SANTANGELO. That just includes cigarettes and not cigars?

Mr. WELLS. Yes. This is just an endeavor to break down the average retail cost of a pack of cigarettes. Federal and State excise taxes accounted for 44 percent of the cigarette dollar in 1958, farmers got about 16 cents while manufacturers, wholesalers and retailers took 40 cents.

FARM EXPORTS

Mr. WELLS. Now moving from the domestic to the export market, here is a chart showing the total value of farm exports by fiscal years from 1951 to 1952 through 1958 to 1959, including a breakdown between normal dollar exports and those directly financed by U.S. Government grants or activities, including exports under Public Law 480.

(The chart referred to is as follows:)




U.S. FARM EXPORTS AND SHARE FINANCED BY GOVERNMENT

The value of agricultural exports at $3.7 billion in the fiscal year 1958–59 was around one-fifth lower than the record high of $4.7 billion in fiscal year 1956–57. Both the value and volume of agricultural exports are expected to increase during this fiscal year with value likely to be the second highest on record. A sharp increase in cotton exports is expected and demand appears strong for fats and oils, oilseeds, fruits, vegetables, feeds and rice.

The chart also illustrates the proportion of our exports which the U.S. Government finances through grants, loans, and sales for foreign currency. Additional quantities have moved under the barter program. "Other" exports include sales of cotton at competitive world prices. Subsidies are paid in kind to wheat exporters and in cash to flour exporters, to cover the difference between the International Wheat Agreement price and domestic market prices. These devices help to maintain commercial sales. If these export sales were included along with exports under grants, loans, and sales for foreign currency, the total would be around 56 percent of the total value of farm exports.

Mr. WELLS. In other words, last year $1.4 billion worth of farm products moved under Public Law 480, ICA donations and other arrangements, where the Federal Government supplied the dollar purchasing power for the commodity. In addition, a sizable block of the "other" or commercial dollar exports was subsidized cotton and wheat moving under the International Wheat Agreement or the Com-

modity Credit cotton export program. In total, over one-half of the 1958–59 farm exports were financed or assisted by governmental arrangements or payments. We have tables for three of the leading commodities wheat, cotton, and corn, showing in detail the arrangements under which they moved in 1958–59.

(The tables referred to are as follows:)

*Wheat and flour exports: Total and amount under specified Government programs, July–June 1958–59 and July–December 1959*

[Thousands of bushels]

| Item | July–June 1958–59 | July–December 1959 |
|---|---|---|
| Total exports | 441,806 | 204,627 |
| Under Government programs | 301,331 | (1) |
| For dollars | 140,475 | (1) |
| Government exports by programs: | | |
| Public Law 480: [2] | | |
| Title I | 230,023 | 102,989 |
| Title II | 10,861 | 5,676 |
| Barter | 20,154 | 11,433 |
| Donations (416)[3] | 20,231 | 14,349 |
| International Cooperation Administration [4] | 20,062 | (1) |

[1] Not available.
[2] Public Law 480, 83d Cong., as amended.
[3] Shipments for relief or charity by individuals or private agencies under title II of Public Law 480.
[4] Includes, in part, exports under Greek-Turkish aid, China aid, Yugoslav, India, and Pakistan relief programs.

*Cotton exports: Total and amount under specified programs, United States, fiscal year ending June 30, 1959*

| Program | Quantity | Value |
|---|---|---|
| | *Million bales* | *Million dollars* |
| Public Law 480: | | |
| Title I | 0.7 | 97.7 |
| Title II | (1) | 1.3 |
| Barter | .4 | 46.0 |
| Mutual security program | .8 | 106.2 |
| Export-Import Bank loans | .4 | 49.2 |
| Total specified programs [2] | 2.3 | 300.4 |
| Other exports [3 4] | .5 | 112.3 |
| Total exports [3 4] | 2.8 | 412.7 |

[1] Less than 50,000 bales.
[2] Detail will not add to totals since totals were made from unrounded numbers.
[3] Total exports and those financed under special export programs are not directly comparable because of differences in reporting periods and techniques.
[4] All U.S. exports of cotton in the fiscal year ending June 30, 1959, were sold at competitive world prices. These prices averaged around 6.5 cents below market prices.

*Corn exports: Total and amount under specified programs, U.S. fiscal year ending June 30, 1959, and July–December 1959*

[Thousands of bushels]

| Item | Fiscal year 1959 | July–December 1959 |
|---|---|---|
| Inventories acquired under price support program: | | |
| Sales for dollars [1] | 15,800 | 669 |
| Public Law 480: | | |
| Sales for foreign currencies, title I [2] | 6,876 | 1,329 |
| Emergency assistance, title II | 1,695 | 0 |
| Barter | 18,004 | 10,894 |
| Payment-in-kind [2 3] | 20,751 | 2,028 |
| Donations [4] | 9,864 | 4,429 |
| Commercial trade [3 5] | 139,925 | 101,275 |
| Total [4] | 212,915 | 120,624 |

[1] Following a policy of monthly sales announcements, CCC offers corn for sale for export under a system of competitive bids. The prices received for corn exported were in general below domestic market prices. Includes grain which may be applied subsequently to barter contracts or Public Law 480, title I authorizations.

[2] Corn delivered as payment-in-kind under Public Law 480 is included in the figures given for title I of Public Law 480.

[3] Payment-in-kind export subsidy program started in May 1958. Of the estimated 139.9 million bushels of exports by the commercial trade in fiscal year 1959, around 125 million bushels earned a payment-in-kind subsidy. Of the 101.2 million exported in July–December 1959, around 78 million earned a payment-in-kind subsidy.

[4] Includes grain equivalent of corn meal.

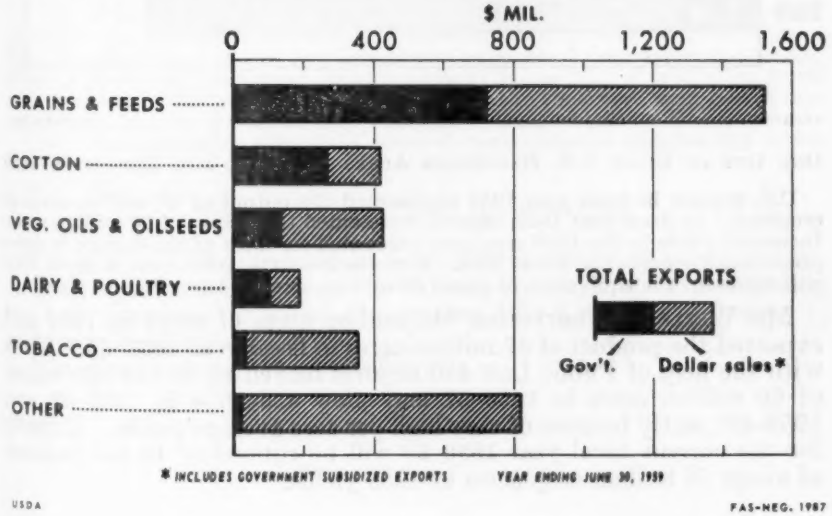
[5] Difference between grand total and total from CCC inventories.

NOTE.—Data for exports under special programs and total exports are not completely comparable because of differences in reporting periods and techniques.

COMMODITY EXPORTS UNDER GOVERNMENT PROGRAMS

Mr. WELLS. This chart shows for 1958–59 the breakdown between commercial dollar and Government-financed exports by major commodity classes.

(The chart referred to is as follows:)



GRAINS AND FEEDS LEADING U.S. EXPORTS UNDER GOVERNMENT PROGRAMS

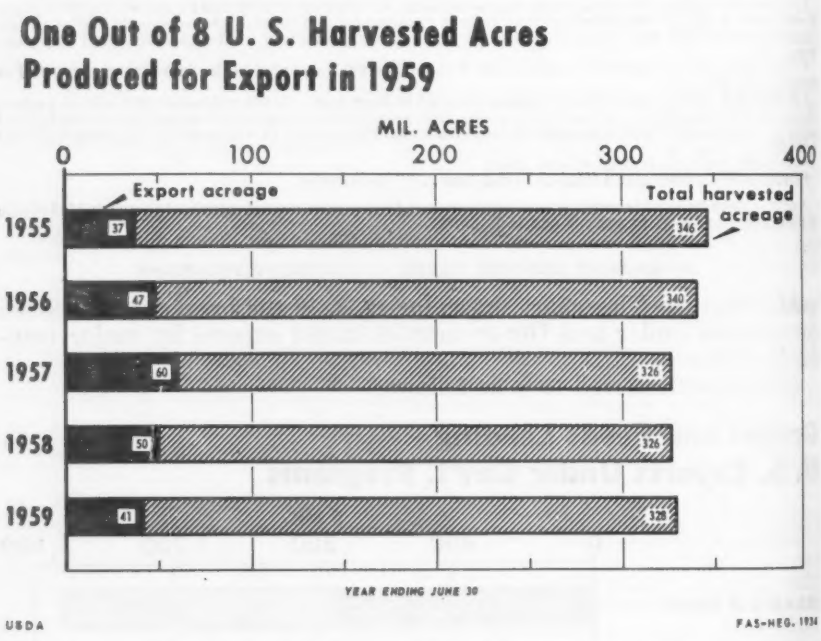
Grains and feeds accounted for 57 percent of the exports moving under Government grants, loans, and sales for foreign currency. Other major farm products shipped under Government programs included cotton, vegetable oils and oilseeds, dairy and poultry products, and tobacco.

Mr. WELLS. Wheat and feed grains are shown in the first bar. In the case of cotton, this was a low export year. Soybean oil is included in the third group.

CROP ACRES EXPORTED

We show the acres which are accounted for by exports in this next chart.

(The chart referred to is as follows:)




ONE OUT OF EIGHT U.S. HARVESTED ACRES PRODUCED FOR EXPORT IN 1959

U.S. exports in fiscal year 1959 represented the output of 41 million acres of cropland. In fiscal year 1958, exports represented the output of 50 million acres. Increased yields in the 1958 crop year accounted for most of the decline in acres producing for export in fiscal 1959. Exports from the 1959 crop in fiscal 1960 will represent the equivalent of about 50 million acres of harvested cropland

Mr. WELLS. We harvested 346 million acres of crops in 1954 and exported the product of 37 million acres in fiscal year 1954–55. Then with the help of Public Law 480 exports moved up to the equivalent of 60 million acres in 1956–57 and show a decline in 1957–58 and 1958–59, partly because of very high per acre average yields. Exports for the current fiscal year 1959–60 will be equivalent to the product of about 50 million crop acres at 1959 yields.

EXPORTS AS PERCENT OF PRODUCTION

This chart shows how important the export market is to a number of selected commodities. We only export up to 8 percent of our total production, and there are several commodities where we export up to 40 percent of our total production.

(The chart referred to is as follows:)

EXPORT MARKET BENEFITS MANY U.S. FARM PRODUCERS

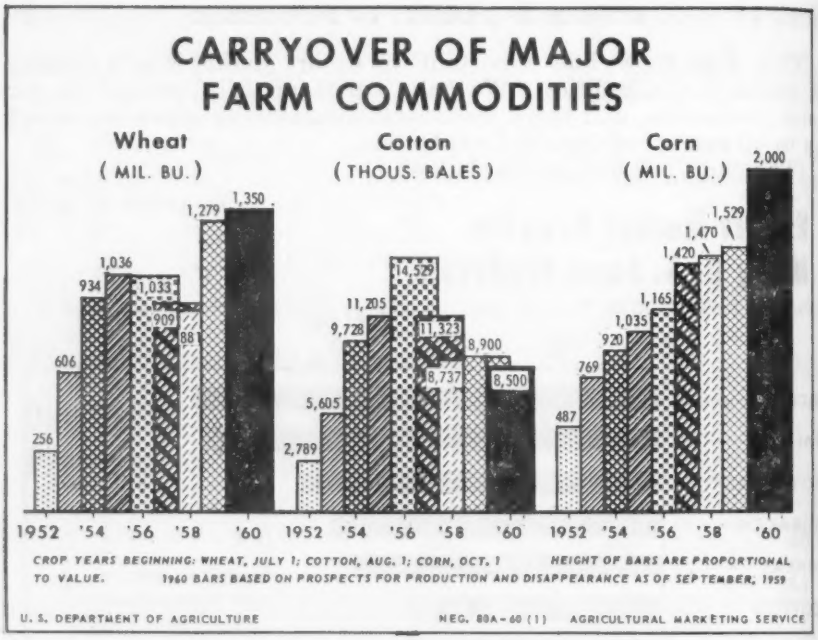
Large shares of the production of some U.S. agricultural commodities are exported. In the 1958 marketing year, the equivalent of more than two-fifths of the U.S. production of rice and tallow was exported. For soybeans, tobacco, wheat, cotton, and barley from about one-fourth to one-third of production found outlets abroad. Although only a small part of the total corn crop moves into world trade, exports accounted for 15 percent of the corn sold by U.S. farmers.

Other crops for which significant amounts were exported included dry edible beans, dry peas, dried prunes, and citrus fruits.

WHEAT, COTTON, AND CORN STOCKS

Mr. WELLS. This stocks chart is one I have shown you several times. It shows yearend carryovers for wheat, cotton, and corn including our best estimates for wheat this coming July 1, cotton on August 1, and corn for October 1, 1960.

(The chart referred to is as follows:)




CARRYOVER OF MAJOR FARM COMMODITIES

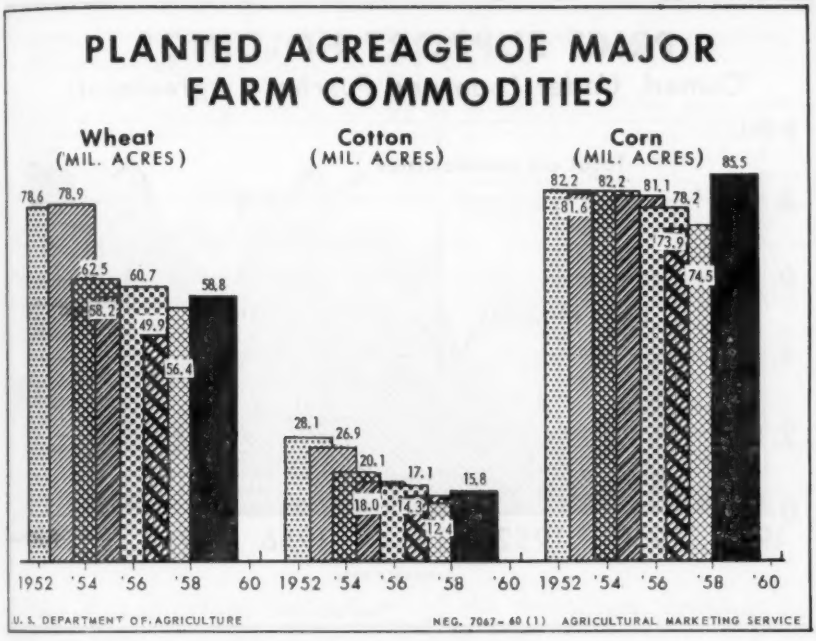
Despite high levels of domestic food consumption and exports in the past several years, production of several farm products has exceeded disappearance and carryover stocks have been increasing. By the end of the current marketing year, corn stocks likely will be around 2 billion bushels with nearly 500 million bushels of the increase occurring this year. Corn stocks have been increasing steadily since 1952. Wheat stocks are expected to increase slightly to a record high level of 1,350 million bushels. Stocks of wheat increased 45 percent from July 1, 1957, to July 1, 1958. Cotton stocks on August 1, 1960, at 8.5 million bales would be down somewhat from a year earlier and around 40 percent below the record high level of 14.5 million bales on August 1, 1956.

Mr. WHITTEN. I understood the Secretary said that would be all right, though of course he was wrong.

PLANTED CROP ACREAGES

Mr. WELLS. You asked last year for a chart showing the acreage of these same crops. This chart shows that back in 1952 farmers planted almost 189 million acres to the three crops, wheat, cotton, and corn. Those acres were gradually cut down, including the acres put in the acreage reserve, to 143 million acres in 1958. Then in 1959 there was an increase in all three acreages, especially for corn, so total acreage planted to the three crops went up to 160 million acres.

(The chart referred to is as follows:)




PLANTED ACREAGE OF WHEAT, CORN, AND COTTON, UNITED STATES, 1952–59

The total acreage planted to wheat, corn, and cotton declined from 188.9 million acres in 1952 to 160.1 million acres in 1959. Compared with the 143.3 planted to these crops in 1958, the 1959 acreage figure was up 16.8 million acres. This increase resulted from the elimination of the acreage reserve program and program changes resulting from new legislation for cotton and corn.

Over the period from 1952 to 1959, acreage planted to cotton declined from 28.1 million to 15.8 million or 44 percent; acreage planted to wheat declined from 78.6 million to 58.8 million or 25 percent. Acreage allotments and marketing quotas were in effect for both of these commodities in 1959 but not in 1952.

The acreage planted to corn increased from 82.2 million acres in 1952 to 85.5 in 1959. No acreage allotments on corn were in effect in either of these years.

Mr. WELLS. In addition to the 11 million increase in corn acreage we also had a very high per acre yield in 1959. In fact, the yields of corn for the last 2 years have been surprising. We think they are above the trend, but nobody knows how much.

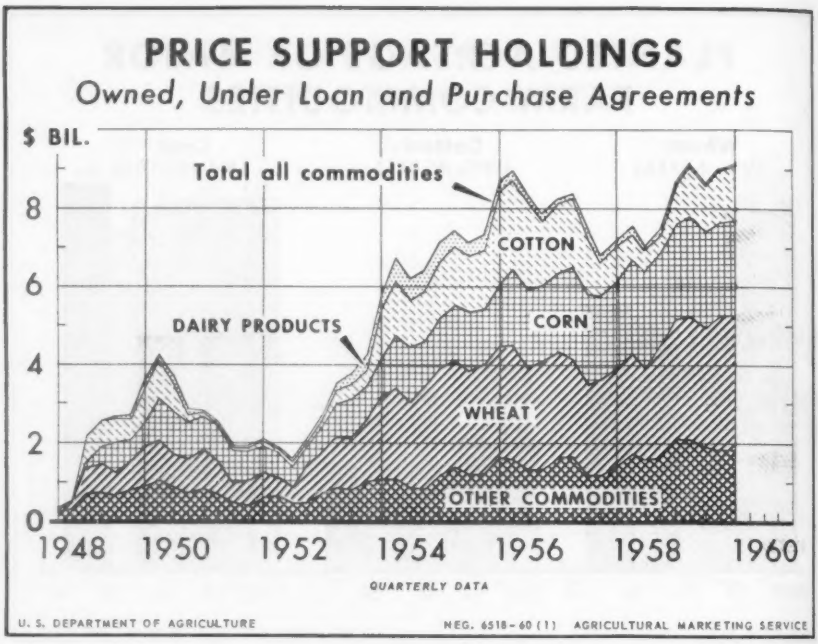
Mr. WHITTEN. This committee can see that that is the reason, if you deal with this across the board. Every time you cut acreage in one commodity, in the absence of some other agreement, that leaves the land available for some other commodity.

Mr. WELLS. Yes. Several years ago as wheat acreage went down, grain sorghum acreage went up. Last year, corn acreage went up and we had a very good yield.

PRICE SUPPORT HOLDINGS

Mr. WELLS. This chart shows who holds the heaviest stocks—the Commodity Credit Corporation. The Corporation's investment in commodity inventories, loans, and reserves against purchase agreements was over $9 billion as of December 31, 1960.

(The chart referred to is as follows:)




PRICE SUPPORT HOLDINGS

The value of CCC price support holdings (owned, under loan and purchase agreement) was $9.2 billion as of December 31, 1959. Wheat accounted for nearly two-fifths of this total, corn one-quarter, and cotton around one-sixth. Together, these three commodities accounted for more than three-quarters of the total.

Mr. SANTANGELO. What would be the total overall amount of money the Government gave to farmers for all price supports in 1959?

Mr. WELLS. Mr. Grant might have the figure.

Mr. GRANT. The total amount in dollars and cents given the farmers for price supports for all products?

Mr. WHITTEN. I am not trying to strike up an argument. You mean the amount of money that had been loaned to the farmers, where much of it came back? Do you mean the Government's loans, or the Government's total investment in the purchases?

Mr. SANTANGELO. I am seeking to find out what is the difference between what was paid out and received in repayments. Give us the total amount that the Government paid out, less what it received in resales and how much the farmer received as a difference.

Mr. WELLS. We have such figures. I do not have them immediately at hand.

Mr. SANTANGELO. I was trying to answer the constant criticism which I have heard in urban areas, that the farmers are getting enormous amounts of Government help, and the only way I can answer the question is to reduce the amount to dollars and cents and find out how much the farmer is actually receiving.

Mr. WHITTEN. We should have a statement of losses of the Commodity Credit Corporation for the period of several years on price-supported commodities. At the same time I would like to have

broken down what you paid out in storage and handling and all those things. From that you will see the total cost to the Government.

(The information referred to is as follows:)

*Summary of major cost elements included in realized losses, fiscal years 1957–59*

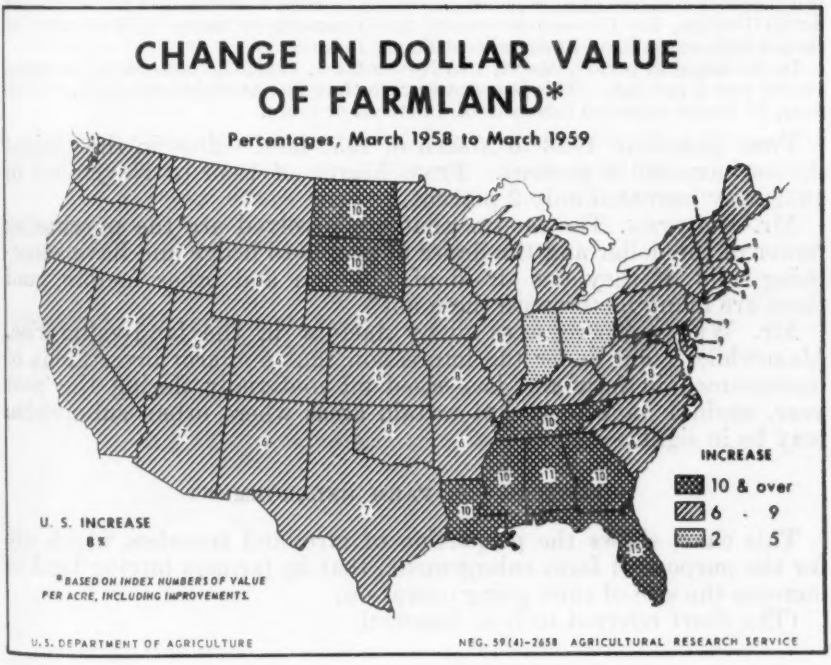
| Item | Realized losses | | |
|---|---|---|---|
| | Fiscal year 1957 | Fiscal year 1958 | Fiscal year 1959 |
| Realized program loss: [1] | | | |
| Storage and handling | $453,642,000 | $249,983,000 | $244,038,000 |
| Transportation and accessorial | 255,303,000 | 160,000,000 | 148,000,000 |
| Commodity costs and other miscellaneous program losses | 739,606,640 | 759,811,464 | 619,799,026 |
| Total realized program loss | 1,448,551,640 | 1,169,794,464 | 1,011,837,026 |
| Administrative and nonadministrative expenses (net of miscellaneous income) | 36,964,536 | 42,753,743 | 48,218,813 |
| Interest expense (net of interest income) | 274,883,710 | 322,876,206 | 146,945,155 |
| Total realized losses | 1,760,399,886 | 1,535,424,413 | 1,207,000,994 |

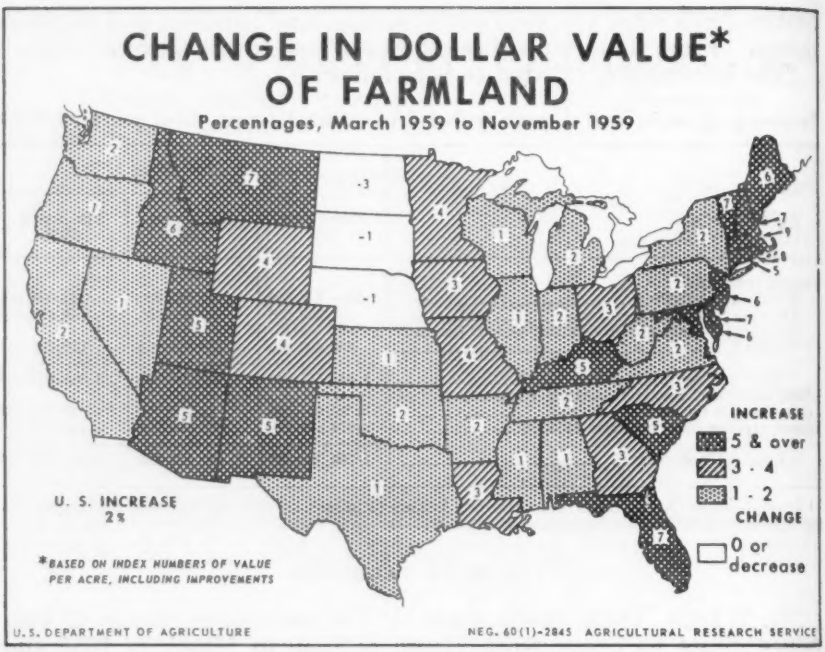
[1] Amounts shown for subitems under program loss are estimated because cost values of commodity dispositions are reported to Washington by totals only.

VALUE OF FARMLAND

Mr. WELLS. These charts show (1) the percentage change in land values, State by State, from March of 1958 to March of 1959 and (2) the percentage change over the 8 months, March to November 1959.

(The charts referred to are as follows:)


CHANGE IN DOLLAR VALUE OF FARMLAND*
Percentages, March 1958 to March 1959
INCREASE
10 & over
6 - 9
2 - 5
U. S. INCREASE 8%
*BASED ON INDEX NUMBERS OF VALUE PER ACRE, INCLUDING IMPROVEMENTS.
U.S. DEPARTMENT OF AGRICULTURE
NEG. 59(4)-2658 AGRICULTURAL RESEARCH SERVICE




CHANGE IN DOLLAR VALUE OF FARMLAND

The U.S. average value of farm real estate per acre increased 8 percent in the 12 months ended March 1, 1959. Illinois and Ohio were the only States in which the increase was less than 6 percent. In six Southern States and in North and South Dakota, the increase amounted to 10 percent or more. Values were at record high levels in all States except South Dakota.

In the 8-month period, March 1 to November 1, 1959, the increase in farmland values was 2 percent. This is a slower rate than has prevailed recently. However, 17 States reported increases of 5 percent or more.

From March of 1958 to March of 1959 land values in the United States increased 8 percent. From March of 1959 to November of 1959 they increased only 2 percent.

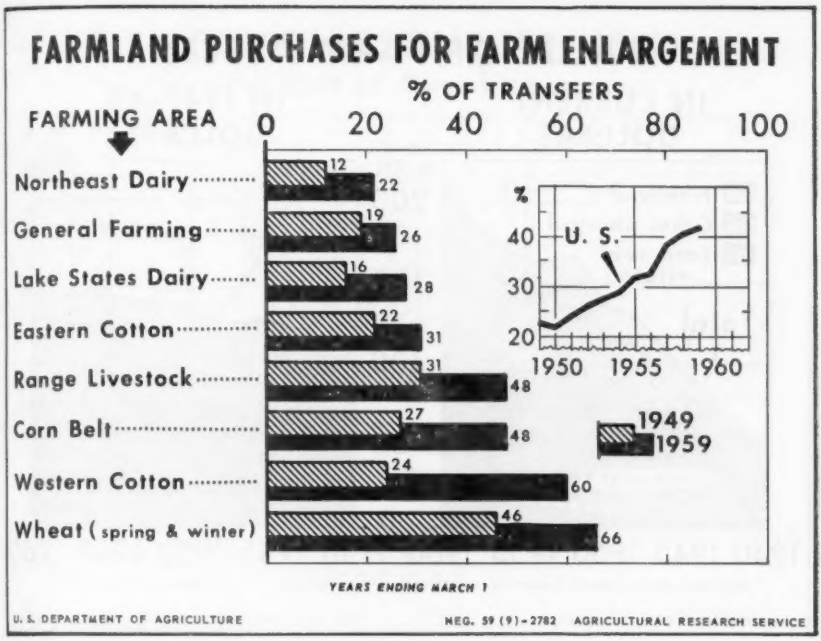
Mr. WHITTEN. The factors that are involved are the purchasing power of the dollar and the desire of people to hedge and have something solid, if they are afraid of inflation and other factors, and there are many factors; are there not?

Mr. WELLS. There were many factors in the land-value rise. Meanwhile, I am under the impression that nonfarm investment of businessmen in farmland has eased off materially during the past year, again I have to except certain areas where urban subdivision may be in sight.

PURCHASES FOR FARM ENLARGEMENT

This chart shows the proportion of farmland transfers which are for the purpose of farm enlargement; that is, farmers buying land to increase the size of their going operation.

(The chart referred to is as follows:)




FARMLAND PURCHASES FOR FARM ENLARGEMENT

Purchases of farmland for the purpose of farm enlargement have accounted for a steadily rising percentage of total farm real estate transfers. Such purchases accounted for 43 percent of total transfers for the year ending March 1, 1959, compared with 39 percent the previous year.

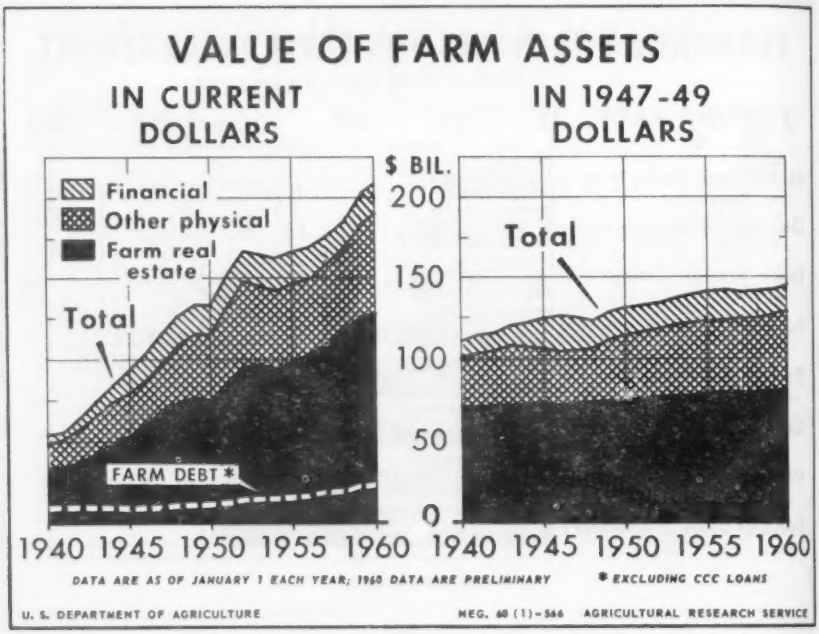
Purchases for farm enlargement in the latest year accounted for 66 percent of all transfers in the wheat (spring and winter) area; 60 percent in the western cotton area; and 48 percent in the Corn Belt and range livestock areas.

Farmland purchases for farm enlargement accounted for 43 percent of all transfers last year, twice the percentage for 1950. The chart gives the data by areas, showing the mechanized areas leading the trend.

VALUE OF FARM ASSETS

This chart shows the value of farm assets, physical and financial, compared with farm debt; both in terms of actual dollars and deflated or constant purchasing power dollars adjusted to a 1947–49 base.

(The chart referred to is as follows:)




VALUE OF FARM ASSETS

The value of farm assets on January 1, 1960, was $208 billion (preliminary estimate), nearly 3 percent higher than a year earlier. This included farm real estate, $128.6 billion, nonreal estate, $60.2 billion, and financial assets, $19.4 billion. The increases for the three components as well as the total were all within a range of 2 to 3 percent.

Accompanying the increase in assets was an increase of 8.7 percent in farm debt, excluding loans held and guaranteed by CCC. Real estate debt increased about 6 percent and nonreal estate debt about 12 percent.

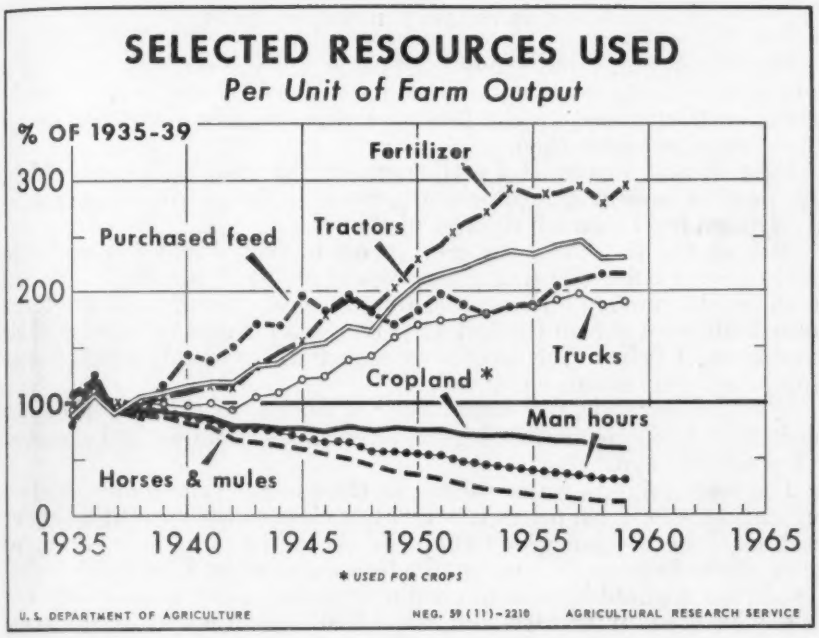
Mr. WHITTEN. It doesn't make any difference what the farmers assets are if he cannot sell. It indicates what his farm is worth, but he has to keep it to farm, so he gets nothing out of it. The bad side of it is what he has got to invest if he wants to go into farming. To call it an asset isn't anything to a farmer unless he can use it or sell it, and as long as he has to keep it and run it, it is not an asset.

Mr. WELLS. One reason that land values are where they are is because a great many farmers are not trying to sell. Still, the farm debt has increased $2 billion in each of the past 2 years. It is worth noting that total farm indebtedness has moved up quite a bit, both in 1958 and 1959.

TECHNOLOGICAL TRENDS

This last chart is an estimate of what is going on in the farm technology field.

(The chart referred to is as follows:)




SELECTED RESOURCES USED PER UNIT OF FARM OUTPUT

Farm production inputs have come increasingly from nonfarm sources. Our advancing technology has brought increased use in farm production of mechanical and electrical power and equipment, chemical fertilizers, pesticides, and a host of other nonfarm goods and services. These purchased inputs have served as substitutes for more land and more labor as farm production has increased.

As both the volume and prices of inputs from nonfarm sources have risen, farmers' cash costs have increased sharply.

Mr. WELLS. We show per unit of farm output, how much was used in the way of horses and mules, man-hours of farm labor——

Mr. WHITTEN. I think that term of man-hour is a misnomer.

Mr. WELLS. It is man-hours of direct farm labor.

Mr. WHITTEN. Of an actual laborer. The public thinks that one farmer can do that much. One farmer plus enough money to start a bank, and equipment can do that. A man-hour is supposed to be so much horsepower, but when you add the one man and all the equipment that he has to have, then you get a true picture.

Mr. WELLS. You are correct. This chart shows farmers use less labor and get higher yields per acre: but the lines in the upper half show that this takes more trucks, more tractors, and farm machinery, more fertilizer and other chemicals, more mixed feed. These are the things farmers have to buy.

Mr. WHITTEN. Those are the things that pulled the farmer's net income down, too.

Mr. WELLS. I am trying to show the technological shift in agriculture, which requires noncash and more cash items per unit of farm output.

SOME FAVORABLE DEVELOPMENTS

Mr. Chairman, I have generally presented the outlook as we discussed it at the national outlook conference last November. I would like to call attention to the fact that three or four favorable things have happened since then.

First of all, a successful settlement of the steel strike, we think, means that consumer income and general business will be at a relatively high level through the rest of this year.

Second, the December pig crop report indicated that farmers were considering cutting the spring pig crop by about 11 percent. We had been rapidly moving into a rather tough hog situation. Although the actual cut may not go the full 11 percent as farmers reconsider their intentions, I believe the December report will probably mean better hog prices next summer and fall.

Third, I have already called your attention to the fact that our agricultural exports are moving somewhat faster than we had expected a few months ago.

The best estimate we can make at the present time under existing legislation is for farm prices to stay at or close to the current level, for cash receipts to farmers in 1960 to be about the same as in 1959, for some slight increase in farm production expense, and for some reduction in net realized income to farm operators. I say these things not as any exact set of forecasts, but as the best estimates that we can make as of now.

May we be off the record?

Mr. WHITTEN. Off the record.

(Discussion off the record.)

Mr. MICHEL. You mentioned the proposed cutback in the pig production this spring. Would that have had any bearing on the figure of 2 billion bushels of corn in storage for 1960, according to one of these charts? Would that have affected the figure at which you arrived?

Mr. WELLS. Yes; it would have.

Mr. MICHEL. So, if they don't cut back that much, and they raise more pigs——

Mr. WELLS. If you cut back, you will have more corn in storage, but nevertheless the proposed cutback is a favorable factor for the hog producer; and it will not hurt the beef cattle.

Mr. WHITTEN. Are there further questions?

Mr. SANTANGELO. No further questions, Mr. Chairman.

Mr. WHITTEN. We are always interested in your charts, Mr. Wells, and your presentation, and we find it all interesting and helpful in assisting us to handle our problems here.

You are at liberty to rearrange the charts and afterward to insert them in the record.

We wish to thank you very much for your appearance. We will see you later, when you will be wearing your other hat.

The committee will stand in recess until 1 o'clock tomorrow afternoon.

TUESDAY, FEBRUARY 16, 1960.

# AGRICULTURAL RESEARCH SERVICE

## WITNESSES

ERVIN L. PETERSON, ASSISTANT SECRETARY OF AGRICULTURE
DR. B. T. SHAW, ADMINISTRATOR, ARS
DR. M. R. CLARKSON, ASSOCIATE ADMINISTRATOR, ARS
DR. T. C. BYERLY, DEPUTY ADMINISTRATOR FOR FARM RESEARCH, ARS
DR. G. W. IRVING, JR., DEPUTY ADMINISTRATOR FOR UTILIZATION RESEARCH AND DEVELOPMENT, ARS
DR. H. K. STIEBELING, DIRECTOR, INSTITUTE OF HOME ECONOMICS, ARS
DR. W. L. POPHAM, DEPUTY ADMINISTRATOR FOR REGULATORY PROGRAMS, ARS
DR. E. C. ELTING, DEPUTY ADMINISTRATOR FOR EXPERIMENT STATIONS, ARS
DR. H. C. KNOBLAUCH, DIRECTOR, STATE EXPERIMENT STATIONS DIVISION, ARS
DR. G. E. HILBERT, DIRECTOR, FOREIGN RESEARCH AND TECHNICAL PROGRAMS DIVISION, ARS
DR. SHERMAN E. JOHNSON, CHIEF ECONOMIST, ARS
F. H. SPENCER, EXECUTIVE ASSISTANT ADMINISTRATOR, ARS
EDMUND STEPHENS, DIRECTOR, BUDGET AND FINANCE DIVISION, ARS
DR. OMER W. HERRMANN, DEPUTY ADMINISTRATOR, MARKETING RESEARCH, ARS
DR. GEORGE N. JEMISON, ASSISTANT CHIEF, FOREST RESEARCH DIVISION, FOREST SERVICE
CHARLES L. GRANT, DIRECTOR OF FINANCE AND BUDGET OFFICER, DEPARTMENT OF AGRICULTURE

Mr. WHITTEN. Gentlemen, the committee will come to order. We are glad to have Mr. Peterson, Assistant Secretary of Agriculture, with his associates before us. We shall be glad to have you proceed with your statement.

Mr. PETERSON. Thank you, Mr. Chairman, and members of the committee.

## JUSTIFICATION OF THE ESTIMATE

Mr. WHITTEN. Could I interrupt and say prior to your statement that I should like to have pages 1, 2, and 3 of the justification in the record.

(The material referred to follows:)

### PURPOSE STATEMENT

The Agricultural Research Service was established by the Secretary of Agriculture on November 2, 1953, under the authority of the Reorganization Act of 1949 (5 U.S.C. 133z–15), Reorganization Plan No. 2 of 1953, and other authorities. It conducts production, utilization, and home economics research and the closely associated inspection, disease, and pest control and eradication work. The Administrator of this Service is also responsible for the coordination of all research of the Department.

The program of the Agricultural Research Service is organized under three areas of activity as follows:

1. Research is conducted under three major categories: (*a*) Farm research (research on crops and livestock, and farm and land management research); (*b*) utilization research and development research; and (*c*) home economics research.

2. Regulatory activities are conducted under three major categories: (*a*) Plant disease and pest control; (*b*) animal disease and pest control; and (*c*) meat inspection.

3. The Service administers the Federal-grant funds for research at the State agricultural experiment stations and operates experiment stations in Puerto Rico, Virgin Islands, and Alaska.

The Service carries out emergency programs, when necessary, for the control and eradication of animal diseases, such as foot-and-mouth disease, and for the control of emergency outbreaks of insects and diseases.

The Service also directs research beneficial to the United States which can be advantageously conducted in foreign countries through grants and contracts with foreign research institutions and universities. This program is carried out with foreign currencies under the authority of sections 104 (a) and (k) of Public Law 480, the Agricultural Trade Development and Assistance Act of 1945 as amended. A discussion of the research activities conducted under Public Law 480 is included under the appropriation "Salaries and expenses (special foreign currency program)." The dollar expenses of the Service in connection with this work are paid from the appropriation "Salaries and expenses."

The Service maintains a central office in Washington, D.C., and operates the 12,000-acre Agricultural Research Center at Beltsville, Md. However, most of the work is conducted at approximately 790 other locations in the United States and possessions and several locations in foreign countries. Much of the work is conducted in cooperation with the State agricultural experiment stations and with other agencies, both public and private. On November 30, 1959, there were 15,965 full-time employees, of which 3,346 were in the Washington metropolitan area and 12,619 were located at other points in the United States and possessions, and foreign countries.

*Appropriations*

| | Appropriated, 1960 | Budget estimates, 1961 |
|---|---|---|
| Salaries and expenses: | | |
| Research | $67,721,590 | $68,981,700 |
| Plant and animal disease and pest control | 49,800,600 | 48,775,600 |
| Meat inspection | 21,324,900 | 21,562,700 |
| Total, salaries and expenses | [1] 138,847,090 | 139,320,000 |
| Salaries and expenses (special foreign currency program) | [2] 12,056,500 | 15,131,500 |
| State experiment stations: | | |
| Payments to States and Puerto Rico | 31,553,708 | 32,553,708 |
| Penalty mail | 250,000 | 250,000 |
| Total, State experiment stations | 31,803,708 | 32,803,708 |
| Construction of facilities | | 900,000 |
| Total (excluding permanent appropriation) | [1] 182,707,298 | 188,155,208 |

[1] Excludes reappropriation of $1,000,000 of 1959 unobligated balances available for labor at research field stations under cooperative agreements, contracts, or direct employment.

[2] Represents the dollar equivalent of allocations of foreign currencies by the Budget Bureau. Obligations of foreign currencies in U.S. dollar equivalents are estimated at $21,917,831 in fiscal year 1960.

*Summary of appropriations, 1960, and estimates, 1961*

| Appropriation item | Appropriated, 1960 | Budget estimates, 1961 | Increase (+) or decrease (−) |
|---|---|---|---|
| Salaries and expenses: | | | |
| Research | $67,721,590 | $68,981,700 | +$1,260,110 |
| Plant and animal disease and pest control | 49,800,600 | 48,775,600 | −1,025,000 |
| Meat inspection | 21,324,900 | 21,562,700 | +237,800 |
| Total, salaries and expenses | [1] 138,847,090 | 139,320,000 | +472,910 |
| Salaries and expenses (special foreign currency program) | [2] 12,056,500 | 15,131,500 | +3,075,000 |
| State experiment stations: | | | |
| Payments to States and Puerto Rico | 31,553,708 | 32,553,708 | +1,000,000 |
| Penalty mail | 250,000 | 250,000 | |
| Total, State experiment stations | 31,803,708 | 32,803,708 | +1,000,000 |
| Construction of facilities | | 900,000 | +900,000 |
| Alterations and improvements, animal quarantine station, Clifton, N.J. (permanent) | 30,000 | | −30,000 |
| Total | [1] 182,737,298 | 188,155,208 | +5,417,910 |
| Deduct permanent appropriation | 30,000 | | −30,000 |
| Total (excluding permanent appropriation) | 182,707,298 | 188,155,208 | +5,447,910 |

[1] Excludes reappropriation of $1,000,000 of 1959 unobligated balances for labor at research field stations.
[2] Represents the dollar equivalent of allocations of foreign currencies by the Budget Bureau. Obligations of foreign currencies in U.S. dollar equivalents are estimated at $21,917,831 in fiscal year 1960.

## General Statement

Mr. Peterson. We appreciate this opportunity to discuss with your committee the work of the Agricultural Research Service, and to offer you every possible assistance as you consider the fiscal 1961 budget for this agency's several activities.

In presenting the proposed 1961 budget of Agricultural Research Service, I wish particularly to emphasize those areas where increases or decreases are being recommended. Dr. Shaw and his associates are prepared to discuss the budget in detail and to tell you about our progress in Agricultural Research Service research and regulatory programs during the past year.

Agriculture is an industry characterized by change. Market demands for farm products change constantly as changes take place in uses, competitive products, population, dietary improvements, foreign trade, and levels of living. Farming itself keeps changing with our changing pest and weather hazards, improved crops and livestock, new equipment and materials, and advances in farm practices. All this is complicated by the fact that technological gains frequently create new problems and lead to further change.

Our research and regulatory work should keep pace with these changes. But that is not enough. It should also anticipate future changes and, if possible, devise ways to meet problems before they emerge.

Research is only one of the factors that are essential in achieving a balanced, progressive, prosperous agriculture—but it may well be the most important factor. Research conceives and develops the ideas that make for better processes and techniques in agriculture and in its dependent and related industries. Agriculture's methods are made easier, less costly, more acceptable, only as research finds new ways to do so.

The program of the Agricultural Research Service is organized for attack on agriculture's most pressing problem. Not all of the problems, of course.

Our total need is greater than we have been able to provide for in the 1961 budget, which necessarily takes into consideration the Nation's needs in all areas of government. This is a minimum budget—but one that will improve our abilities to attack major problems.

A net increase of $760,000 is proposed for Agricultural Research Service research, and we are recommending a net decrease of $1.3 million for regulatory work. These amounts do not include an increase of approximately $1 million requested to meet the Federal contribution for employee health benefit costs. With these costs there is a total net increase in the Agricultural Research Service budget for the salaries and expenses appropriation of $470,000.

In addition, an increase of $1 million is proposed in payments to State agricultural experiment stations, and also one for $900,000 to replace entomology research facilities now in use in Orlando, Fla.

Mr. WHITTEN. Off the record.

(Discussion off the record.)

Mr. WHITTEN. Proceed.

### NEW USES FOR FARM PRODUCTS

Mr. PETERSON. One of the principal increases for Agricultural Research Service is in the field of utilization research. With the continuing excess supplies of some agricultural products, finding new uses for them is a matter deserving of all the productive effort possible. We are recommending an increase of $1.5 million in this area.

Furthermore, we are proposing to bring this up to $2.2 million by shifting over to utilization an additional $700,000 from work in the present farm research program.

In making this shift, we would close small or isolated stations and terminate work at locations where financing is inadequate for effective research. The remainder of the shift would be accomplished by dropping the lowest priority work on crops produced in excess of present use—especially production research on cotton, wheat, and corn.

We propose to combine this $700,000 in redirected funds with an increase of $500,000—making $1.2 million in all—to put greater emphasis on utilization research to increase the industrial use of cereal grains.

Our scientists see opportunity in the industrial development of high amylose starch, the fermentation of grain to produce microbial insecticides and other chemicals, and the separation of wheat into fractions for a variety of uses.

In addition, the fundamental exploration of cereal grains is far from complete. This sort of work is needed before an intelligent determination can be made as to what new processes and products might be developed.

An increase of $600,000 is recommended for research on cotton and wool fibers. This includes $500,000 to further improve the quality of cotton textiles and thus strengthen their competitive position, and $100,000 for similar research on wool.

We propose an increase of $100,000 for research on castor beans to be used in an effort to develop new chemicals and products from the oil and to seek methods for detoxifying castor meal to increase its value and usefulness.

Another recommended increase for utilization research is $300,000 to further explore and develop uses for animal fats as lubricants, plastics and plasticizers, and soap-detergent combinations.

It has long been recognized that industry offers a potential for expansion of the market for farm-produced commodities. We believe that research can make these commodities increasingly stronger competitors of nonagricultural products in the field of industrial raw materials. Benefits from such a result would accrue to farmers, industry, and consumers.

Some of the recent accomplishments of our utilization laboratories are outlined in a new report prepared at the request of the Senate Committee on Appropriations. Copies of that report were recently made available to you. I have additional copies here for your ready reference.

Mr. ANDERSEN. Could I ask a question, Mr. Chairman?

Mr. WHITTEN. Certainly.

REDIRECTION OF FARM RESEARCH FUNDS TO UTILIZATION RESEARCH

Mr. ANDERSEN. You had just stated, Mr. Peterson, that the remainder of the shift would be accomplished by dropping the lowest priority work on crops produced in excess of present use—especially production research on cotton, wheat, and corn. What do you have in mind, specifically, there?

Mr. PETERSON. Might I ask Dr. Shaw to respond to your question, Mr. Andersen.

First, let me say this, that believing that the utilization work should be increased and the shift should be made, we asked the technical people, Dr. Shaw and his associates, to review the work being done in the area of farm research, and to designate those areas which in their judgment could best be deemphasized at this time. You will recall in fiscal year 1959 we made some proposals for shifting funds which met with the disapproval of Congress. We did not repeat that same proposal this year, but we did ask the agricultural research people to designate other work that they thought could be deemphasized.

Mr. ANDERSEN. You are referring to reduction in funds for the three main items?

Mr. PETERSON. Yes, sir.

Mr. ANDERSEN. What do you have in mind with respect to cotton, Dr. Shaw?

Dr. SHAW. Elimination of production research on cotton at Los Angeles and Davis, Calif.; Baton Rouge, La.; State College, Miss.; Clemson, S.C., and Greenville, Tex. It is in the amount of $67,000 for these locations.

With respect to what Mr. Peterson said, I might add, Mr. Andersen, that when we were asked to make up the $700,000, the first thing we did was to look at all research clear across the board which, in our opinion, had served its effectiveness and could be reduced or eliminated. So those were the first projects considered.

Secondly, inasmuch as this was a shift related to the excess supplies of cotton, corn, and wheat, and designed to increase the utilization research on these crops we took the lowest priority items in our production research related to cotton, wheat, and corn.

Mr. ANDERSEN. How about wheat?

Dr. SHAW. There is proposed the elimination of wheat research at Davis, Calif.; Lafayette, Ind.; Hays, Kans.; Raleigh, N.C.; Logan, Utah; Madison, Wis., and Denton, Tex.

Mr. ANDERSEN. What specific projects were they, Doctor? They had to do with increasing production?

Dr. SHAW. Yes; research on production of wheat. At most of the locations that I named, the research is concerned with breeding of wheat.

Mr. ANDERSEN. How about corn?

Dr. SHAW. Production research on corn would be eliminated at Pasadena, Calif.; Manhattan, Kans., and Knoxville, Tenn.

Mr. ANDERSEN. The bulk of this $700,000 will come out of the savings relative to former production research on cotton, wheat, and corn, is that right?

Dr. SHAW. It will be somewhat less than half.

Mr. ANDERSEN. All right. Are you going to devote the same half, approximately, to utilization research relative to these three particular crops?

Dr. SHAW. Our proposal is to put the whole $700,000 on cereals.

Mr. ANDERSEN. Cereals?

Dr. SHAW. Wheat and corn.

Mr. ANDERSEN. Well, I wouldn't want wheat and corn to benefit at the expense of cotton.

Dr. SHAW. We have an increase in the regular item of $1.5 million, which does provide a $500,000 increase for utilization research on cotton.

Mr. ANDERSEN. It is simply a shift on production research from certain grains over to other research benefiting the general setup.

Mr. PETERSON. That is the intent. I have a tabulation showing the amounts taken from each station and area, together with the residual amounts which would remain with that station.

Mr. ANDERSEN. I wouldn't want to burden your statement with that right now.

Mr. PETERSON. We will be glad to put it in at the appropriate place, if you wish.

(The information requested appears on p. 257.)

Mr. ANDERSEN. Thank you for yielding.

Mr. PETERSON. Certainly.

### DEVELOPMENT OF CHEMICALS AND BIOLOGICAL MEASURES TO REDUCE OR AVOID HAZARDS FROM PESTICIDE RESIDUES

Another major increase is the additional $1.5 million we are recommending to intensify research on new agricultural chemicals, improved methods of using chemicals, and biological measures that will reduce or avoid hazards from chemical residues.

We believe that the American people—not only farmers and food processors but also consumers—have a great stake in this matter of chemicals and foods.

Farmers simply cannot produce enough safe, wholesome foods without chemicals. A variety of chemicals are widely used today in all phases of food production, processing, and marketing. They are as essential for efficient production of foods as are tractors, improved varieties of crops, and better breeds of livestock. If we were to abandon the use of chemicals, the quantity and quality of our food supply would drop off rapidly, and food prices would likely rise just as abruptly.

Let me make one thing clear at this point. The Department considers that the safety of the Nation's food is its first responsibility in carrying out assignments from the Congress. This principle guides all our research and our regulatory and service activities pertaining to foods and to the use of chemicals in food production and distribution.

The Department is proud of the part it has played over the last half century in making the U.S. food supply the safest, cleanest, and most wholesome in the world. In every way possible, our actions are aimed to assist growers, processors, and distributors in producing and marketing products that meet the requirements of law, and are fully acceptable to consumers.

Our position is this: We strongly endorse the safe use of carefully tested chemicals as required to maintain the excellence, variety, and economy of the foods we eat.

There is nothing unusual about the use of chemicals in foods. It is as old as preserving meat with salt and as new as adding thiamine to bread. The agricultural and food chemicals in use today are the products of many years of research in which the effect of these chemicals on the safety of our food supplies has been a prime consideration. This research—conducted by the Department of Agriculture, the State agricultural experiment stations, and the chemical and food industries—is continuing on a substantial scale.

In spite of all these efforts, however, there appears to be growing public apprehension over known or potential hazards associated with the use of chemicals in the production and processing of the Nation's food supply.

### FEDERAL COOPERATION IN RESEARCH ON PESTICIDES

Mr. WHITTEN. Mr. Peterson, I don't differ with you in the least, as to the need in those areas, if I might interrupt; but in view of the recent conflict between the Department of Health, Education, and Welfare and the Department of Agriculture, where pesticides and insecticides, or at least certain chemicals, had been approved by that agency itself and suddenly we have all the turmoil that followed, it raises a serious question. This ought to be a cooperative effort, so that both sides are in agreement while it is going on, so that the answers can be used.

Mr. PETERSON. Responding to your question as to the possibility of cooperative research work between the Department of Health, Education, and Welfare, and the Department of Agriculture, I could say that we would welcome cooperative research, to the extent that it can be accomplished and brought about. However, the research technique and the scientific capacities that go into research would be the same whether it was done cooperatively or not. The findings of research would be equally usable, whether it were done cooperatively or not.

As to advantage in cooperative research, there I am not sure whether there is or not, but if there is, we would certainly welcome every opportunity to do it cooperatively.

Mr. WHITTEN. It might be well to have the Department of Health, Education, and Welfare, in the research projects, so that they would at least be tied to their own findings.

Again, I am not trying to solve this controversy at this time, but it will be developed fully.

Is there any benefit in having the Department of Health, Education, and Welfare participate in the research, so that they will, in turn, support the conclusions and findings, as against having done nothing but remain in a veto position over the Department's conclusions and findings?

Mr. PETERSON. If there are benefits, we would welcome the opportunity for cooperative research. I am personally persuaded that the problem is less one of the findings of research, either existing or potential, than it is of following specifically the provisions of law which vest in administrative officers certain powers. It is particularly important, I think, in this area of administration, as it is in the administration of all law, that, irrespective of what an administrator thought ought to be done, his power to act is only that given him by the law he administers, and the procedures he must use are only those prescribed by the law itself.

I am not personally convinced that the procedures in the two cases to which you make reference were not extra-legal.

Mr. WHITTEN. As it appears now an Administrator can be very, very capricious; but that is not exactly the point I am making here.

In view of the difference of opinion that exists between the two departments about whether to act or not, what Agriculture comes up with cannot be final. If you had the best scientists in the world, would the Department of Health, Education, and Welfare under its present leadership, accept your research findings? Or do we have to have them in on the research, so that the research results will be partially theirs, and they will have to accept a part of the responsibility for such findings?

Mr. PETERSON. I have no reason to believe that the Department of Health, Education, and Welfare, including Secretary Flemming himself, have at any time questioned research findings of the Department of Agriculture. Neither is there—"conflict," and that is the best word I can find at the moment—although there appears to be a difference. We in Agriculture feel that in this complex field and the administration of laws related to it, there must be a place for the exercise of the best informed scientific and professional judgment that is obtainable. It is our understanding that the decisions presently being made with respect to the food and drug laws, and with particular reference to the Delaney amendment, that this point of view of Agriculture is not the point of view held by the Department of Health, Education, and Welfare, that their point of view is that there is no room under the laws for the exercise of the best scientific and professional judgment in the making of decisions under those laws.

As we see it in Agriculture, in this kind of an area, there must be room for trained scientific professional judgment before decisions to be taken under the authority of law are made.

Mr. WHITTEN. This thing, in my opinion, has been handled as some people in public office would. Frequently, the original of a document is sent to the newspapers, the press, with a copy to the addressee. The handling of this by Mr. Flemming reminds me of that kind of thing.

Now, again, whether the Secretary of the Department of Health, Education, and Welfare had flatly taken these things off the market, is kind of beside the point, because, in his position, if he were to announce in the press that the public had better beware of this, that, or the other, and there was no proof that such commodity wouldn't cause cancer—because we could not prove what will, and therefore you cannot prove what doesn't—the damage would be done in the news release, whether he took action or not.

My question is not to try to get you involved. The question is, would it help any if we provide the money that you request on a cooperative basis with the Department of Health, Education, and Welfare, not merely to have them offer their assistance, but so that the results will be a joint finding? I recognize the problem, and I recognize that something needs to be done. The question is: Should it be a joint undertaking?

Mr. PETERSON. Mr. Chairman, I would hope that the committee would not make that a requirement for the use of these funds. I would be glad to have Dr. Shaw and his associates file with you in writing, after consideration of this idea, their best judgments. I would prefer to use their judgments on a research matter of this kind than I would my own, certainly.

Mr. WHITTEN. May I say, for the record, that my leading into this line of questions does not mean that the committee is making any threat or presently indicating it might do that. I am speaking only for myself. We are a committee, and the majority rules on this committee. But I was merely raising this question for your reaction.

Mr. PETERSON. I think it is a very proper question to raise, Mr. Chairman.

ADMINISTRATION OF DELANEY AMENDMENT

Mr. HORAN. Isn't it true that we are almost declaring some residues toxic by act of Congress under the Delaney amendment, rather than the findings of scientists?

Mr. PETERSON. May I ask some of our professional people to answer that? I am only expressing an opinion, and I would have to express my opinion affirmatively.

Mr. HORAN. The charge has been made, and it cries to high heaven for solution. I was on the Delaney committee, and I thought we did a pretty good job. I took the same position that you do here in your statement, that we could not raise crops without the assistance of the chemical industry; and so, when it came time to make our report in 1954, I filed a minority report and did not sign the original report.

It is my understanding that, at least informally, the highest type of cooperation already exists informally between the Public Health Service and the Department of Agriculture scientists in the findings before the registration of any new material; and that brings in this heptachlor.

I still don't know the basis upon which the Food and Drug Administration declared it illegal.

Mr. PETERSON. The cooperation between the operating people in the Department of Health, Education, and Welfare, and the Department of Agriculture, has been very close and cordial and informal over a period of a great many years, Mr. Horan. We thought in Agriculture that the Delaney amendment was without objection at the time the Congress considered it and passed it.

It is my personal opinion that the Delaney amendment, even as it now stands, can be administered if we accept the concept that the best professional and scientific knowledge obtainable should get the facts and express a judgment as to whether a substance is capable of causing cancer in a warmblooded animal; remotely capable, infinitesimally capable, or acutely capable. I think there is a difference.

Mr. HORAN. Could we not ask the Food and Drug Administration to remove all cigarettes from the market?

Mr. ANDERSEN. With better justice.

Mr. WHITTEN. Off the record.

(Discussion off the record.)

Mr. PETERSON. On the record, it seems to me, Mr. Chairman, and gentlemen, that there are two things that we are basically concerned with: one, the safety of the food itself; and, second, the confidence of the public in the Government agencies responsible for seeing that safety is provided. There is, of course, room for difference of opinion with respect to any given subject. It seems to me that before a conclusion is reached as to the safety of a food, that the scientific facts available must be judged by people competent to make that judgment, and these are the learned scientists in this field.

I don't think in this field we can say, categorically, that a hazard, even though it is improbable and remote, is the same type as a hazard that is clear and imminent and aggravated.

Mr. WHITTEN. It comes back to the thing that disgusts the American people and disgusts me as a Congressman. It sounds simple, but when you get into all aspects of the problem, it raises again a serious question in view of the desire of all of us to protect public health, and in view of the desires, certainly, of the Department of Agriculture and the Department of Health, Education, and Welfare to see that pesticides, insecticides, and various chemicals do not do injury to public health. I have the feeling that it might be well to work in this field of cooperative work, so that the other Department, which apparently has the determination of whether half the American farmers are going bankrupt in a given year—and that is what they can do any time they issue a news release. They do not have to issue an order, merely a press release. As long as that situation prevails, they have the control over what can be marketed—whether they issue an order or a press release. We should have either a cooperative project, or the whole job should be turned over to them.

If the whole job were turned over to them, apparently, then, they would have the approval or disapproval of particular pesticides, insecticides, and other chemicals; and certainly where they had approved them in the first instance, it might have the effect that they might not suddenly reverse themselves, in the absence of proof, as they did in this other case.

Mr. PETERSON. So far as I am advised, there is no difference between the two Departments, or their scientists, with respect to the scientific evidence available out of research or experimental findings. It does appear that there is a difference, as I indicated, in that the Department of Health, Education, and Welfare, as I understand their position, holds that there is no room for scientific judgment on a given set of facts, whereas we in Agriculture believe that there is room for such judgment with respect to those facts.

We think informed professional judgments should be expressed and exercised by the most competent people who can be obtained to exercise these judgments, by scientists themselves.

We think that is the essential difference.

Mr. WHITTEN. You come up with this research and give answers, and you say that all you have to do is to use judgment, and another Department says they have no authority to use judgment. Your approval in that instance would mean nothing, because your approval would mean that they have to exercise judgment; and they say they cannot exercise judgment. And so in this research, would you be coming up with answers that require no judgment?

PURPOSE OF BUDGET INCREASE FOR RESEARCH ON PESTICIDES

Mr. PETERSON. The research that is being proposed under the increases proposed in the budget is not being pointed at that particular question. It is pointed at finding chemicals which are nontoxic, or finding nonchemical ways of controlling pests and insects; so that the measures we are proposing are not pointed specifically at answering a question as to whether the food is, per se, safe or not.

DETERMINING EFFECT OF RESIDUES ON MAN

Mr. HORAN. May I comment, Mr. Chairman, on that point?

Mr. WHITTEN. Yes.

Mr. HORAN. I have probably had more experience than any man in Congress on this subject. I was libeled. I was libeled when I had obeyed the law. If you can get that one, that is pretty good. So I know something about this.

When you are finding out whether something is toxic or not to human beings, I would have to submit that I think the Public Health Service has better equipment to determine that in the case of human beings than has the Department of Agriculture.

Mr. PETERSON. We would agree with that, certainly.

Mr. HORAN. It is this committee that helped the apple industry to reach a solution on a very vexing problem that existed from 1924 until 1941, when, about in 1939, the budget, this budget—and I am sure it was in the Agriculture budget—contained funds to conduct experiments through the Public Health Service on the effect of arsenate of lead as distinguished from arsenic residue on human beings, and those experiments were conducted at the Marine Hospital in Seattle, Wash., and were conducted on people who lived in the Fruit Belt, and volunteered to become guinea pigs.

I think the tolerance was 0.017, as far as arsenate was concerned, at the time the experiments were started. Two years later the Public

Health Service came out and said that they could increase that tolerance five times without any deleterious effect on human beings.

I just don't see how you are going to achieve the objective without finding out, authoritatively, what the effect is on human beings; and I think the chairman is on pretty sound ground, that it would be rather difficult to do this without the full cooperation of the Public Health Service.

In my opinion, that is a pretty fine service, and I would like to see them employed where they can do some good.

Mr. PETERSON. They are a fine service. I want to join you in that observation, Mr. Horan. The Nation is well served by the Public Health Service.

LOSSES TO AGRICULTURE

Mr. WHITTEN. I would like to say that I thoroughly agree. But I do think that these problems should be met in such a way as not to lead our American citizens, who have their whole lifesavings tied up in a crop, into bankruptcy on a such a slim possibility.

It is just as well that I say it in the record here, because you cannot do any damage on this at this late date; but I read in the press that the Acting Secretary of Agriculture had said that he would pay these farmers for their losses. I have not made a thorough research, but, having served on this committee for many years, offhand, I don't know of any authority that the Department has to pay for cranberries or caponettes which cannot be eaten, according to the Department of Health, Education, and Welfare.

I am familiar with the matter of handling surplus commodities that are usable, I know of no authority in this case. I am making this statement that if none does exist, I think the Congress should, in view of the circumstances, pass appropriate authorizations and make appropriations. I am presently of the opinion that you are likely to have to do it that way because of the lack of authority within the Department.

Mr. PETERSON. Mr. Chairman, I had not been a party to those negotiations, and I don't know on what basis the statement to which you made reference was made, or if it was made in that manner; so I cannot enlighten you.

Briefly, the Department must have authority to expend funds the Congress makes available before it can agree to expend them.

Mr. WHITTEN. I don't mean to indicate that the Acting Secretary intended to act in bad faith. I am sure that he was sincere, and felt he could carry out his commitment. I am speaking without having done the research that, as a rule, I would have done, before rendering any opinion. I don't recall any authority, offhand, that presently exists.

Mr. PETERSON. I don't know, Mr. Chairman.

Mr. WHITTEN. You might proceed, then.

PROPOSED RESEARCH ON INSECT-CONTROL METHODS

Mr. PETERSON. To meet this problem, we are proposing a comprehensive expansion of our research along two broad lines: First, we should intensify our efforts to develop new insect-control methods that do not involve the use of chemicals. And, second, we should

develop safer chemicals and improved methods for their application and use.

Just a word here about biological measures. They seem to offer good opportunities for control of some destructive insect pests without using chemicals. In a few cases, as in the campaign against the screwworm in the Southeast, these measures have proved highly successful.

Frequently, however, the host and the controlling agents reach a natural balance at a level that permits greater crop losses than growers can tolerate. So the biological agents we have discovered and learned to use so far cannot begin to solve our pest-control problems. Farmers must still depend primarily on safe, effective, economical chemicals.

We know a number of promising possibilities for improving chemical control measures. Our scientists would intensify their efforts to develop pesticides and repellants that would protect livestock and forage crops without leaving residues in meat and milk; attractants to use as baits and thus cut down the amount of insecticide needed; pesticides that would be less harmful to pollinating insects and to the natural enemies of destructive insects.

Information must be developed on pesticide metabolites, or breakdown products which may be more toxic than the original chemical. We should determine the toxicity and safe amounts of promising new chemicals. Vitally needed are animal feeding tests and other means to determine safe tolerance limits for chemicals, along with pathological and physiological studies to find out what happens inside the animal.

We propose to investigate the use of systemic insecticides in plants and animals, and to determine the effects, pesticide accumulations in soils on plants and soil organisms. We should develop better equipment and application methods to increase the efficiency and effectiveness of pesticides and thus reduce the quantities required for control.

Biological control offers many interesting prospects, too. We propose to expand our search for parasites and predators capable of controlling destructive insects and weeds, and develop ways to produce and use them effectively. We would also look for bacteria, fungi, viruses, protozoa, and other organisms that might be useful for controlling pests. And the success of the sterile-male method against the screwworm calls for more exploration of its use against several other pests.

One more point on this matter of chemicals.

In all our research and regulatory activities, we naturally expect to maintain our close cooperative relations with the Food and Drug Administration, Public Health Service, and other interested State and Federal agencies. In addition, the Federal and State extension services are intensifying the continuing campaign of education for all who use agricultural chemicals.

### NATIONAL ANIMAL DISEASE LABORATORY, AMES, IOWA

A third major increase is proposed for moving into the National Animal Disease Laboratory at Ames, Iowa, and operating these fine new facilities. I am glad to report that this Laboratory will be completed in time to start operations during the latter part of fiscal year 1961. The recommended increase of $1 million includes $800,000 for

animal disease research to be conducted there, and $200,000 for the animal disease control activities.

The opening of this Laboratory will mark a new phase in our battle against diseases of livestock and poultry. It will give us better facilities for research and for laboratory phases of control programs now conducted at Beltsville. We will be in position to resume work on important diseases that we have been forced to neglect for several years; and we will be able to initiate vital new basic and applied research as well as laboratory work necessary to our regulatory activities.

On the control side, we need to reestablish work on diagnosis of animal and poultry diseases as they are encountered in the field. We must also catch up with our responsibility for testing animal biologics. The rapidly expanding production of these important protectors of animal health is overwhelming our capacity for licensing and inspection, especially in regard to vaccines and other products for poultry. The proposed increase for 1961, combined with the $1.4 million of funds now available, will move us into the new Laboratory and pay the costs of operations for the latter part of 1961. But these funds will not put us into full-scale operation.

### ALTERNATE SYSTEMS OF FARMING

In farm economics research, we are recommending an increase of $100,000 to determine alternate systems of farming to enable feed-grain and livestock farmers to adjust more readily to market demands.

Balancing production with demand for feed grains and livestock is one of the most difficult problems we face in agriculture. It's going to be especially difficult in the next 5 to 10 years.

### ANNUAL OPERATING COSTS OF AMES LABORATORY

Mr. ANDERSEN. Just one question at that point, Mr. Peterson. How much do you anticipate it will take to put it into full operation?

Mr. PETERSON. As I recall, it is something over $3 million.

Dr. SHAW. Another $3 million on top of this.

Mr. ANDERSEN. Another $3 million a year?

Mr. PETERSON. On top of this.

Mr. ANDERSEN. I am talking about the annual cost of operating the Laboratory.

Dr. SHAW. We have $1.4 million, and now we are asking for an additional $1 million. This would give us $2.4 million, and we estimate the full cost will be $5.4 million.

Mr. ANDERSEN. And we can estimate at $5.4 million each year from then on?

Dr. SHAW. Yes.

### NONRECURRING ITEMS OF CONSTRUCTION

Mr. PETERSON. There is a decrease of $3.1 million in our proposed budget for research as a result of eliminating several nonrecurring items for construction of laboratories and other facilities. These include the crops laboratory at Logan, Utah; development of physical facilities at the National Arboretum; boll weevil research facilities at State College, Mississippi; and corn and other grain insect research facilities at Tifton, Ga., and Brookings, S. Dak.

SPECIAL FUND

There is another research decrease of $1 million, because of the expiration of the provision in this year's budget for a special fund made available in 1960 through reappropriation of 1959 unobligated balances. This fund substantially strengthened our research in the field this year by providing extra help for our scientists.

ANIMAL DISEASE CONTROL AND ERADICATION

The decrease proposed under regulatory activities—$2.1 million in all—comes in the field of animal disease control and eradication. This consists of a decrease of $1.25 million for brucellosis eradication and $850,000 for screwworm eradication.

We are recommending $15,477,000 for Federal participation in the brucellosis work for 1961. This is approximately the same amount we proposed last year; however, you will recall that Congress added $1.25 million over our request. Progress in the calendar year 1959 has been rather significant.

Since we last reported to you, nine additional States have qualified as modified-certified brucellosis areas, which means that infection has been reduced to not more than 1 percent of the cattle and not more than 5 percent of the herds. To date, 24 States, Puerto Rico, and the Virgin Islands have achieved this status, and 1,848 of our 3,152 counties are certified.

After the proposed decrease of $1.25 million, we would have $15,477,000 for brucellosis eradication in 1961, which should allow the work to proceed at a reasonable rate. In the current fiscal year, the States are contributing $15,182,000 toward this joint effort. Thus, the total program anticipated by our proposal is in excess of $30 million.

ACCELERATION OF BRUCELLOSIS ERADICATION

Mr. ANDERSEN. Mr. Chairman, would you permit a question at this point?

Mr. WHITTEN. Yes.

Mr. ANDERSEN. Mr. Peterson, have you studied the advisability of perhaps a crash program relative to brucellosis, and get rid of it once and for all?

Mr. PETERSON. I have not studied that specific question, Mr. Andersen. I have been a dairy farmer, and I have been the State Director of Agriculture in the State of Oregon, and now here in Washington I have been close to the brucellosis program ever since its inception; and I would express a judgment to you, sir, that we will not be completely rid of brucellosis in your lifetime and my lifetime, on the basis of any methods we presently know of to eliminate the disease.

I think it can and will be reduced to a very low incidence, as is the case of tuberculosis in cattle.

There are three kinds of brucellosis, the melitensis in goats, the suis in swine, and the abortus in cattle.

With the number of cattle in this country, I am persuaded that as long as there is one residual point of infection, there is always a possibility of further infection spreading throughout the country.

I think that we can ultimately rid the country of both tuberculosis and brucellosis. It will be a long-term program. It will cost a lot of money. I am not sure of the degree to which the program could be stepped up, if it is the desire of Congress to do it. The supply of veterinarians is better today than it was some years ago.

I don't know the point to which it could be expanded, on a crash basis. I am merely trying to make the point that there is a limit of effective expansion.

Mr. ANDERSEN. In other words, we cannot do with brucellosis what we did with the foot-and-mouth disease, can we?

Mr. PETERSON. In my opinion, no. I would prefer to have some of our professional people talk on that question.

Mr. ANDERSEN. Would you consider that to be a possibility, Dr. Clarkson? Could it be eliminated once and for all?

Dr. CLARKSON. Yes, it can be eliminated once and for all; but, as Mr. Peterson said, it would be a very long and arduous program.

Mr. WHITTEN. The slower you move, the longer it is; wouldn't you say?

Dr. CLARKSON. I suppose that is a truism that applies to all these programs. It is difficult to know just what the optimum level is. Mr. Andersen mentioned foot-and-mouth disease as a comparable disease. With such a highly contagious, fast-moving disease that excites public alarm, immediate and widespread public support can generally be obtained for whatever measures may be necessary.

Mr. ANDERSEN. Let me compare it more with tuberculosis; we have done a pretty good job of eradicating tuberculosis, have we not?

Dr. CLARKSON. Yes; but I think the point that is weighing on the Assistant Secretary's mind is in relation to what we now see in tuberculosis that we did not some years ago. We did not take vigorous enough action to hold the gains that had been made, and to move on to the final phase of eradication. Now we find tuberculosis on the increase in a number of important cattle-raising areas of the country.

Mr. ANDERSEN. Because you have failed on our recheck program; is that correct?

Dr. CLARKSON. That is correct. We did not follow up vigorously enough.

Mr. ANDERSEN. In the mid-1920's my herd of cattle was the second accredited herd in my home county of Lincoln County in Minnesota, and Lincoln County was also the first tuberculosis accredited county in America. I put that in the record each year because I am very much interested in that element of work.

I think that the average Member of Congress, Mr. Peterson, would back you up 100 percent in being liberal on this brucellosis control program. I don't think that this is a place we should save unwisely, or try to perhaps do less than what we could do, consistent with good policy of eradication.

Mr. WHITTEN. Would the gentleman yield to me for a question?

Mr. ANDERSEN. Yes.

Mr. WHITTEN. This committee had all sorts of requests, including some from the American Farm Bureau Federation, which is not always strong for exceeding budget requests, and from many other places about the country, complaining that the funds are already exhausted for the current year in many States, and you have nine additional States that have come into this program.

Now, if the Congress had put another quarter of a million dollars into this program, and you have the nine new States, and $16.25 million had proved insufficient, I wonder how you expect to keep brucellosis eradication at the present level, in view of the fact that this coming year you will have less money and nine additional States. How are you going to handle it?

Dr. CLARKSON. I cannot identify the nine additional States.

Mr. WHITTEN. Mr. Peterson said you have nine additional States.

Mr. PETERSON. Nine States with a going program, which had reached the modified-certified status.

Mr. WHITTEN. I misunderstood. At least you had additional States coming in, did you not? How many are there?

Dr. CLARKSON. There are several that have moved further into eradication this year.

Mr. WHITTEN. Where is the exact statement?

Here it is, where he said, "Since we last reported to you, nine additional States have qualified as modified-certified brucellosis areas." By that you mean they have qualified for handling the matter?

Mr. PETERSON. They have qualified to the extent that the infection in those States has been reduced, where not more than 1 percent of the cattle, and not more than 5 percent of the herds are showing evidence of disease. A number of those had been in an eradication program for many, many years before they reached this status; and, I assume, without being able to immediately identify these States, that this was the case here.

Mr. WHITTEN. I had taken it that there were nine new States.

Mr. PETERSON. No.

Mr. WHITTEN. But you had taken in several new States?

Mr. PETERSON. There are various stages of the program in all the States. It varies from very little to a very extensive program; and as the livestock people and the State interest builds up, then the State and the Federal cooperation builds up with it.

### EFFECT OF CURRENT LEVEL OF BRUCELLOSIS ERADICATION

Mr. WHITTEN. Now, coming back to what you expect to do with less money, those nine States that you have said have worked as hard as they have to bring it down to this level; are you going to say that is low enough, or what will you do?

Mr. PETERSON. That depends on how the State attitude is expressed. I would hope that the States would be sufficiently interested to maintain their own forces, and we maintain our forces, and get the incidence of disease even below the incidence required for this modified-certified status.

Mr. ANDERSEN. I would like to ask a question on the record.

Mr. WHITTEN. Certainly.

Mr. ANDERSEN. I would like to ask you, Mr. Peterson, if you feel that the money requested in this particular budget for the control of brucellosis will at least hold the situation in the United States of America, relative to that disease, in a position which is not any worse than what it is today?

Mr. PETERSON. I not only think it will do that, Mr. Andersen, but I think it will advance us further along the road to modified-certified

free areas. I think with these funds, together with what the States are putting in, that we will have some additional counties, and perhaps some additional States, achieve this modified-certified brucellosis-free condition within the next year.

Mr. ANDERSEN. You feel that we are not losing ground, or will not lose ground as a result of the size of this appropriation?

Mr. PETERSON. I don't feel that we will, no.

Mr. ANDERSEN. That is all, Mr. Chairman.

Mr. MICHEL. Since the Congress last year upped your request in this particular area, how much more do you think was accomplished by virtue of that increased amount that would not normally have occurred?

Mr. PETERSON. I cannot answer that categorically, Mr. Michel.

Obviously, more testing and surveillance was done with the additional funds than would have been done without the additional funds. It may be that Dr. Clarkson or Dr. Popham can give you more information. The present balance between the State and Federal expenditures is a reasonable balance. If the States can go along, then I think the Federal Government should come along. I think this balance is good. I think it takes both State and Federal interest to get this job done; and I may be wrong, but I am convinced that with the funds proposed, as I said to Mr. Andersen, that not only can the current situation be maintained, but additional progress can be made.

Now, Dr. Clarkson may be able to answer more specifically your question.

Dr. CLARKSON. Actually I cannot, except to say that the additional funds were put into areas leading to eradication in additional counties; but I don't think I can say, and it would be difficult to say, that this figure of nine additional States would be appreciably altered: that there might have been only seven or eight instead of nine.

Actually, that would be impossible to say, anything in relation to these nine additional States. The States that you certified this year were largely completed last year, and the States that are certified next year will be largely completed this year; and, over a period of time, all of these States will be in.

Mr. MICHEL. Are there any projections in the future as to what additional number of States might be certified next year, when you may be in this same position?

Mr. PETERSON. I don't know if Dr. Clarkson can comment on that or not.

Dr. CLARKSON. I can furnish that information for the record. Current estimates are that one additional State and 175 additional counties will be certified during 1961.

Mr. WHITTEN. Since we have gone into the details that we have, I wonder if it would not be appropriate for you to put in the record the amount of money for the last several years that has gone to the various States, and what the State contribution has been, and what the reduction in payments will be by States; so that we can see if those States are carrying the load, and whether your optimistic point of view of several years ago, that the States would carry more and more of the load, is actually so.

Mr. PETERSON. I will be glad to do that, Mr. Chairman.

(Material referred to follows:)

*Eradicating brucellosis*

[In thousands of dollars] [1]

| Location | Date of State certification | 1954 | | | 1955 | | | 1956 | | | 1957 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Federal | Non-Federal | Counties certified [2] | Federal | Non-Federal | Counties certified [2] | Federal | Non-Federal | Counties certified [2] | Federal | Non-Federal | Counties certified [2] |
| Alabama | | $37 | $113 | | $406 | $90 | | $422 | $90 | | $570 | $100 | |
| Alaska | | | | | | | | 1 | | | | | |
| Arizona | June 1959 | 27 | 44 | | 49 | 33 | | 84 | 43 | | 128 | 47 | 1 |
| Arkansas | | 130 | 74 | | 329 | 50 | | 353 | 60 | | 536 | 60 | |
| California | | 37 | 479 | | 102 | 481 | | 130 | 357 | | 237 | 367 | |
| Colorado | | 66 | 16 | | 125 | 21 | | 98 | 24 | | 115 | 33 | |
| Connecticut | July 1957 | 3 | 83 | | 13 | 108 | | 46 | 96 | | 71 | 150 | |
| Delaware | January 1957 | 30 | 102 | | 47 | 120 | | 44 | 85 | 2 | 28 | 55 | 3 |
| Florida | | 96 | 94 | | 201 | 118 | | 312 | 266 | | 389 | 270 | 6 |
| Georgia | December 1959 | 47 | 275 | 7 | 348 | 169 | 7 | 377 | 204 | | 688 | 412 | 7 |
| Hawaii | | | | | | | | | | | 2 | | |
| Idaho | | 52 | 116 | 8 | 191 | 67 | 8 | 312 | 101 | 9 | 350 | 102 | 13 |
| Illinois | | 96 | 478 | | 571 | 600 | | 723 | 830 | | 374 | 1,190 | |
| Indiana | | 26 | 514 | 1 | 322 | 572 | 1 | 701 | 657 | 13 | 752 | 661 | 30 |
| Iowa | | 176 | 334 | | 580 | 462 | | 634 | 555 | | 824 | 794 | |
| Kansas | | 2 | 144 | | 81 | 44 | | 236 | 40 | | 398 | 190 | |
| Kentucky | | 31 | 99 | | 213 | 80 | | 244 | 128 | | 319 | 350 | 1 |
| Louisiana | | 85 | 210 | | 571 | 258 | | 962 | 1,393 | | 857 | 1,418 | |
| Maine | July 1950 | 84 | 86 | 16 | 118 | 110 | 16 | 77 | 110 | 16 | 60 | 111 | 16 |
| Maryland | April 1959 | 160 | 198 | 4 | 408 | 130 | 4 | 342 | 230 | 3 | 364 | 297 | 4 |
| Massachusetts | March 1959 | 6 | 27 | | 39 | 32 | | 91 | 50 | 1 | 175 | 123 | 3 |
| Michigan | June 1958 | 122 | 443 | 28 | 358 | 178 | 28 | 610 | 320 | 15 | 685 | 345 | 50 |
| Minnesota | May 1957 | 409 | 1,150 | 28 | 1,730 | 969 | 39 | 1,578 | 763 | 74 | 932 | 644 | 87 |
| Mississippi | | 52 | 170 | | 377 | 77 | | 467 | 86 | | 663 | 132 | 1 |
| Missouri | | 49 | 219 | | 828 | 114 | | 989 | 713 | | 1,170 | 713 | |
| Montana | | 90 | 202 | 2 | 378 | 250 | 11 | 429 | 250 | 20 | 412 | 250 | 36 |
| Nebraska | | 43 | 145 | | 306 | 175 | 2 | 760 | 310 | 6 | 876 | 310 | 24 |
| Nevada | April 1959 | 19 | 26 | | 70 | 25 | | 110 | 35 | | 125 | 31 | 4 |
| New Hampshire | August 1949 | 30 | 109 | 10 | 33 | 93 | 10 | 44 | 93 | 10 | 42 | 88 | 10 |
| New Jersey | June 1958 | 34 | 181 | 1 | 111 | 179 | 1 | 139 | 316 | 2 | 163 | 297 | 6 |
| New Mexico | do | 50 | 26 | | 100 | 18 | | 127 | 21 | 1 | 237 | 40 | 8 |
| New York | November 1959 | 30 | 1,033 | | 33 | 1,026 | | 84 | 1,183 | | 220 | 1,105 | 2 |
| North Carolina | July 1942 | 67 | 168 | 100 | 104 | 92 | 100 | 160 | 84 | 100 | 190 | 127 | 100 |
| North Dakota | | 120 | 220 | 22 | 187 | 213 | 26 | 331 | 180 | 31 | 409 | 180 | 34 |
| Ohio | | 65 | 265 | | 154 | 231 | | 175 | 260 | | 241 | 335 | 1 |
| Oklahoma | | 27 | 124 | | 126 | 75 | | 248 | 75 | | 347 | 81 | |
| Oregon | July 1959 | 137 | 217 | 3 | 196 | 193 | 8 | 261 | 193 | 10 | 349 | 236 | 14 |
| Pennsylvania | March 1958 | 163 | 1,279 | 25 | 526 | 1,265 | 31 | 709 | 1,319 | 36 | 654 | 1,300 | 55 |
| Rhode Island | February 1958 | 2 | 18 | | 6 | 21 | | 12 | 23 | | 22 | 35 | |

See footnotes at end of table, p. 129.

52089—60—pt. 1——9

*Eradicating brucellosis*—Continued

[In thousands of dollars] [1]

| Location | Date of State certification | 1954 | | | 1955 | | | 1956 | | | 1957 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Federal | Non-Federal | Counties certified [3] | Federal | Non-Federal | Counties certified [3] | Federal | Non-Federal | Counties certified [3] | Federal | Non-Federal | Counties certified [3] |
| South Carolina | | $29 | $103 | 8 | $179 | $77 | 8 | $239 | $115 | 1 | $235 | $120 | 8 |
| South Dakota | | 45 | 74 | | 93 | 97 | | 178 | 125 | | 404 | 100 | |
| Tennessee | September 1959 | 39 | 169 | | 338 | 174 | | 487 | 248 | | 823 | 222 | 6 |
| Texas | | 14 | 54 | | 14 | 54 | | 14 | 54 | | 148 | 60 | |
| Utah | June 1958 | 42 | 27 | | 130 | 20 | | 185 | 29 | 1 | 283 | 96 | 7 |
| Vermont | August 1957 | 31 | 116 | | 148 | 95 | | 211 | 97 | | 319 | 120 | |
| Virginia | | 35 | 458 | | 299 | 259 | | 272 | 226 | | 396 | 315 | 4 |
| Washington | June 1956 | 193 | 228 | 18 | 349 | 224 | 24 | 394 | 305 | 39 | 382 | 183 | 39 |
| West Virginia | October 1959 | 23 | 92 | 14 | 82 | 70 | 14 | 121 | 90 | 10 | 141 | 101 | 20 |
| Wisconsin | June 1956 | 237 | 1,282 | | 2,240 | 1,267 | 1 | 3,034 | 2,760 | 71 | 1,044 | 1,371 | 71 |
| Wyoming | | 35 | 29 | | 122 | 10 | | 152 | 15 | | 190 | 18 | |
| District of Columbia and regional business offices. | | 213 | | | 837 | | | 1,274 | | | 1,385 | | |
| Puerto Rico | November 1957 | 41 | 91 | 39 | 165 | 148 | 40 | 203 | 123 | 29 | 276 | 157 | 64 |
| Virgin Islands | October 1958 | | | | | | | | | | | | |
| Total | | 3,677 | 12,204 | 334 | 15,333 | 11,234 | 379 | 20,186 | 15,730 | 500 | 21,000 | 15,842 | 735 |

| Location | Date of State certification | 1958 | | | 1959 | | | 1960 [2] | | | 1961 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Federal | Non-Federal | Counties certified [3] | Federal | Non-Federal | Counties certified [3] | Federal | Non-Federal | Counties certified [3] | Federal | Non-Federal [4] | Counties certified [5] |
| Alabama | | $452 | $100 | 3 | $405 | $100 | 7 | $338 | $100 | 15 | $315 | | 18 |
| Alaska | | | | | | | | | | | | | |
| Arizona | June 1959 | 172 | 54 | 11 | 155 | 52 | 14 | 130 | 57 | 14 | 121 | | 14 |
| Arkansas | | 844 | 210 | 18 | 747 | 220 | 37 | 550 | 256 | 54 | 513 | | 62 |
| California | | 533 | 774 | 2 | 723 | 1,490 | 14 | 711 | 1,168 | 36 | 661 | | 47 |
| Colorado | | 274 | 74 | 12 | 260 | 26 | 25 | 195 | 50 | 32 | 182 | | 35 |
| Connecticut | July 1957 | 62 | 152 | 8 | 46 | 168 | 8 | 43 | 144 | 8 | 44 | | 8 |
| Delaware | January 1957 | 16 | 38 | 3 | 19 | 28 | 3 | 18 | 28 | 3 | 18 | | 3 |
| Florida | | 370 | 371 | 19 | 322 | 292 | 26 | 242 | 323 | 29 | 226 | | 30 |
| Georgia | December 1959 | 889 | 656 | 66 | 693 | 661 | 121 | 526 | 611 | 159 | 480 | | 159 |
| Hawaii | | 13 | 43 | | 22 | 115 | | 34 | 118 | | 32 | | |
| Idaho | | 348 | 101 | 25 | 359 | 175 | 36 | 264 | 199 | 44 | 246 | | 44 |
| Illinois | | 813 | 1,200 | 12 | 389 | 1,053 | 37 | 584 | 917 | 60 | 543 | | 80 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Indiana | | 574 | 622 | 41 | 512 | 622 | 56 | 400 | 514 | 92 | 373 | | 92 |
| Iowa | | 730 | 1,029 | | 839 | 1,287 | | 557 | 700 | 4 | 520 | | 9 |
| Kansas | | 371 | 119 | | 431 | 200 | 1 | 367 | 396 | 7 | 342 | | 19 |
| Kentucky | | 435 | 350 | 6 | 541 | 300 | 21 | 471 | 481 | 38 | 438 | | 49 |
| Louisiana | | 998 | 923 | | 719 | 362 | 2 | 541 | 416 | 5 | 504 | | 8 |
| Maine | July 1950 | 82 | 119 | 16 | 71 | 107 | 16 | 71 | 107 | 16 | 66 | | 16 |
| Maryland | April 1959 | 319 | 247 | 17 | 304 | 217 | 23 | 256 | 199 | 23 | 239 | | 23 |
| Massachusetts | March 1959 | 196 | 150 | 6 | 172 | 140 | 14 | 143 | 136 | 14 | 134 | | 14 |
| Michigan | June 1958 | 870 | 372 | 83 | 661 | 400 | 83 | 534 | 369 | 83 | 497 | | 83 |
| Minnesota | May 1957 | 789 | 505 | 87 | 696 | 470 | 87 | 523 | 601 | 87 | 488 | | 87 |
| Mississippi | | 780 | 137 | 12 | 530 | 165 | 32 | 446 | 165 | 39 | 415 | | 46 |
| Missouri | | 879 | 995 | 9 | 765 | 1,167 | 37 | 503 | 534 | 65 | 469 | | 80 |
| Montana | | 366 | 175 | 49 | 377 | 175 | 48 | 238 | 175 | 52 | 222 | | 53 |
| Nebraska | | 768 | 234 | 39 | 743 | 315 | 43 | 453 | 200 | 46 | 422 | | 48 |
| Nevada | April 1959 | 256 | 74 | 10 | 215 | 72 | 17 | 158 | 58 | 17 | 147 | | 17 |
| New Hampshire | August 1949 | 42 | 78 | 10 | 42 | 69 | 10 | 38 | 66 | 10 | 38 | | 10 |
| New Jersey | June 1958 | 162 | 226 | 21 | 156 | 208 | 21 | 126 | 174 | 21 | 117 | | 21 |
| New Mexico | do | 235 | 83 | 32 | 183 | 56 | 32 | 155 | 45 | 32 | 145 | | 32 |
| New York | November 1959 | 204 | 1,035 | 8 | 232 | 1,157 | 46 | 213 | 1,202 | 62 | 199 | | 62 |
| North Carolina | July 1942 | 179 | 132 | 100 | 194 | 132 | 100 | 198 | 182 | 100 | 185 | | 100 |
| North Dakota | | 319 | 183 | 38 | 261 | 132 | 39 | 199 | 170 | 41 | 185 | | 42 |
| Ohio | | 288 | 336 | 8 | 266 | 296 | 30 | 220 | 310 | 44 | 206 | | 52 |
| Oklahoma | | 390 | 126 | | 393 | 130 | 1 | 306 | 144 | 2 | 286 | | 4 |
| Oregon | July 1959 | 489 | 240 | 23 | 365 | 279 | 35 | 273 | 306 | 36 | 254 | | 36 |
| Pennsylvania | March 1958 | 490 | 1,090 | 67 | 420 | 850 | 67 | 304 | 864 | 67 | 283 | | 67 |
| Rhode Island | February 1958 | 18 | 62 | 5 | 15 | 50 | 5 | 18 | 53 | 5 | 18 | | 5 |
| South Carolina | | 233 | 123 | 17 | 215 | 127 | 26 | 164 | 127 | 31 | 153 | | 34 |
| South Dakota | | 487 | 360 | 1 | 345 | 340 | 5 | 287 | 250 | 15 | 268 | | 20 |
| Tennessee | September 1959 | 970 | 422 | 38 | 853 | 471 | 81 | 511 | 210 | 95 | 476 | | 95 |
| Texas | | 244 | 127 | | 270 | 143 | 3 | 307 | 123 | 13 | 286 | | 33 |
| Utah | June 1958 | 299 | 107 | 29 | 242 | 76 | 29 | 210 | 107 | 29 | 197 | | 29 |
| Vermont | August 1957 | 190 | 132 | 14 | 171 | 150 | 14 | 144 | 124 | 14 | 134 | | 14 |
| Virginia | | 420 | 315 | 27 | 384 | 325 | 55 | 328 | 325 | 66 | 305 | | 98 |
| Washington | June 1956 | 347 | 166 | 39 | 366 | 166 | 39 | 297 | 193 | 39 | 277 | | 39 |
| West Virginia | October 1959 | 167 | 121 | 34 | 206 | 121 | 50 | 195 | 128 | 55 | 182 | | 55 |
| Wisconsin | June 1956 | 818 | 1,217 | 71 | 743 | 1,183 | 71 | 510 | 912 | 71 | 474 | | 71 |
| Wyoming | | 225 | 75 | 3 | 196 | 85 | 6 | 226 | 47 | 13 | 211 | | 15 |
| District of Columbia and regional business offices | | 1,608 | | | 1,828 | | | 1,962 | | | 1,801 | | |
| Puerto Rico | November 1957 | 229 | 126 | 77 | 168 | 140 | 77 | 150 | 98 | 77 | 140 | | 77 |
| Virgin Islands | October 1958 | | | 1 | | | 3 | | | 3 | | | 3 |
| Total | | 22,252 | 16,706 | 1,217 | 20,230 | 17,065 | 1,653 | 16,637 | 15,182 | 1,983 | 15,477 | | 2,158 |

[1] Reflects actual Federal obligations 1954–59; estimated obligations 1960–61, and estimated non-Federal contributions in all years.

[2] As of Feb. 18, 1960.

[3] Represents cumulative total of certified counties in each State at the close of the fiscal year, and estimated as of June 30, 1960.

[4] No estimates have been received from the States.

[5] Estimated number June 30, 1961, based on continuation of State support at same level as for 1960.

RESPONSE OF STATES IN COOPERATIVE PROGRAM

Mr. MICHEL. Is there one factor that would provoke the States to do more in this area, that you could put your finger on? What is the best way to get the States to move?

Mr. PETERSON. I can only say that the responsiveness of the States is very similar to the responsiveness of the Federal Government. If the people concerned evidence interest and request a program, then usually the States are responsive, and it depends entirely on the extent of the interest of the livestock people themselves.

WASTE IN DEPARTMENT OF DEFENSE PROCUREMENT POLICIES

Mr. WHITTEN. I just came from hearings on defense appropriations. Our subcommittee had hearings on procurement policies, and it is a revelation the waste that goes on in defense. We had today before us a followup as to what the Defense Department is doing now. The record shows that, to cite only a few illustrations that I recall—that over 85 percent of all that is contracted for is by negotiation, largely because they don't draw up definite plans which they can submit along with the invitation to bid. Much of it comes because they give one contractor the research and development, and he has got the edge.

Where we have been able to bring them around to competitive bidding, quite frequently we cut down from 30 to 50 percent of the original cost.

Two items that I recall from reading this report this morning in the other committee, the Defense Department is declaring $8 to $10 billion of their purchases as surplus each and every year. The record showed in one instance that the Air Force had sent 30,017 lockers shipped from various cities in the United States, to a base in Europe where they had only 4,000 personnel. The record showed that they had only 300 that needed lockers, and the Army had over 700 lockers adjacent to them in the same area, and they sent 30,017 lockers over there, at a cost of $100,000 in transportation. The remaining lockers have been in storage over there from that time.

The Government is spending $7 to dispose of items for which it collects only $5.

Now, that sordid story in the Defense Department operations doesn't excuse us in any way from trying to hold this budget down; but these things do have some relationship to the overall. That is representative of what we are up against, and then we come here, where we are dealing with the very welfare of all the American people, and we have all the trouble in the world trying to find sufficient funds to operate.

Mr. PETERSON. Mr. Chairman, I wish to join with you in saying that we should eliminate unnecessary expenditures wherever they exist. I am, of course, primarily concerned in areas for which I have responsibility that any waste be eliminated.

I can only speak with respect to the budget before you. We have tried to do the best we can on a conservative basis. I respect your view and the view of Mr. Andersen, although we, at times, reach different conclusions.

Mr. WHITTEN. I am sorry we interrupted. I think a discussion of a subject is better at the time it is first mentioned, rather than to wait for it later.

Mr. PETERSON. Please feel free to interrupt whenever you wish, Mr. Chairman.

SCREWWORM ERADICATION

I am sure you have followed the remarkable progress of our screwworm campaign in the Southeast. We haven't found screwworms in Florida since June, and none in South Carolina, Georgia, or Alabama for over a year. This area used to report 40,000 cases a month.

As a result of this success, the Sebring plant, which had been turning out 50 million sterile screwworm flies a week, was placed on a standby basis last November.

I want to emphasize that word "standby." It is most important to protect our gain against the screwworm, and the investment made in the eradication effort. We must not only maintain surveys throughout the Southeastern States, to spot any new infestations, but also assure thorough inspection along the lower Mississippi River, to keep infested animals from coming in.

The proposed reduction will leave a balance of $1.4 million for this work. We expect to maintain a readiness to move against an outbreak at a moment's notice.

THREAT OF FOREIGN DISEASES AND PESTS

We are recommending an increase of $500,000 for quarantine inspection services needed to protect the United States against the constant threat of entry of foreign diseases and pests due to the rapid increase in foreign travel and commerce. This is a matter of the utmost urgency. Our inspection staffs have not grown along with the workload, and we can no longer provide adequate coverage with the available force.

The newest challenge came with the opening of the St. Lawrence Seaway last summer—directly exposing the agricultural heartland of the continent to many kinds of foreign diseases and insect pests. The opening ceremonies were hardly over before the dangerous khapra beetle was discovered aboard a freighter putting in at Cleveland, Ohio. With two-thirds of this country's borders now vulnerable to pest invasion by water, the hazard of introduction is very substantially increased.

Already our quarantine inspectors are stopping a destructive agricultural pest from entering the country once every 20 minutes, on the average. They are dealing with nearly twice as many vessels and several times as many airplanes and vehicles as we faced only a few years ago.

Many ports of entry are understaffed and new ones are being opened. The increase would enable us to employ about 48 additional inspectors and to reimburse the Bureau of Customs approximately $80,000 for providing extra baggage inspection for agricultural quarantine purposes. We will continue to exert every effort to acquaint the public with quarantine restrictions, and maintain close working relationships with U.S. agencies and with quarantine officials of other countries.

PESTICIDE REGULATION

An increase of $100,000 is recommended to carry out on a full-year basis the Department's responsibilities under the Federal Insecticide,

Fungicide, and Rodenticide Act amendment approved last August. This places four additional classes of chemicals—nematocides, plant regulators, defoliants, and desiccants—under the regulatory controls exercised by this Department under the Act.

This means additional work. It calls for taking samples, analyzing them to see that the contents agree with the manufacturers' claims, and testing them to make sure that they are both safe and effective. There are already 4,000 of these products on the market, subject to regulation for the first time. We look for 1,200 additional ones each subsequent year. There is an average of three registrations for each new product due to distributors' brands and amended registrations. These must be handled promptly to satisfy the law as well as the trade, including users.

### ERADICATION OF IMPORTED FIRE ANT

You will recall that the committee last year requested the Department to review the program in cooperation with the States to eradicate the imported fire ant.

I am glad to report substantial progress in this work. Granular insecticides are used. Both the formulation and methods of application have been improved. In many areas eradication is being accomplished with as little as 4 ounces of insecticide per acre, followed by a second application of 4 ounces 3 to 6 months later. Treatments are applied in the fall and winter months, or when edible parts of food or feed are not in the fields. The reduced rate of application provides a much wider margin of safety for wildlife and beneficial insects.

We continue to have excellent cooperation with the States and landowners in areas infested with this pest. Work is undertaken only where there is local government support and landowner participation.

All known fire-ant infestations in Arkansas have been eliminated, and we have cleared out all known infestations in a total of 67 counties in North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and Texas. In all, 1.7 million acres have been successfully treated.

### COSTS OF MEAT INSPECTION

Another matter the committee asked us to look into is the possibility of reducing the costs of meat inspection (1) by eliminating or reducing our requirements for inspection of food products containing meats, and (2) by using State employees to perform inspection services.

The Department has conducted a thorough examination of these areas. We are unable, however, to suggest a way of shifting to State agencies responsibility for handling Federal inspection. Nor can we recommend cutting off inspection of meat products.

Processed meat food products are particularly vulnerable to several types of adulteration that are offensive to the consumer and cannot be detected by later sampling and laboratory analysis. Skillful blending of several types of meats and meat byproducts can incorporate portions of uninspected or diseased products and unfit parts of the animals, such as intestines. The current system of inspectional

control of processing establishments prevents these abuses. We have not been able to find an alternate method of doing so.

The assurance that these products are prepared only from wholesome ingredients under sanitary conditions costs each person less than the retail price of one frankfurter a year. Furthermore, this service protects our valuable export markets—importing countries demand certificates showing that meat products have been federally inspected.

### LABORATORY FACILITIES AT GAINESVILLE, FLA.

The recommended budget for 1961 includes one major item for construction of facilities. This is an increase of $900,000 to replace present entomology research facilities at Orlando, Fla. You will recall that the committee questioned the continued use of our present location as an agricultural research station because of the adjacent business development and the high commercial value of the land.

In response to your request to recommend a new location, we considered a number of sites in Florida. Many communities have suggested locations and offered land. As a result of our study, we recommend that the laboratory be placed at Gainesville, on the campus of the Univeristy of Florida.

This location will not only enable us to work with scientists at the university, but also offers opportunities for training our junior workers, and provides excellent library facilities. The university is willing to donate a desirable 10-acre tract.

The increase is proposed as a separate appropriation in order to provide funds for this building construction, which will remain available until expended.

### RESEARCH ABROAD WITH PUBLIC LAW 480 FUNDS

In the budget this year, for the first time, is a proposal for an appropriation to supplement our domestic research effort through purchase of foreign currencies derived from the sale of surplus commodities abroad under Public Law 480. Previously, funds for this purpose have been obtained from two sources: allocation of foreign currencies from Bureau of the Budget, in the case of market development research under section 104(a), and an allotment from an appropriation made to the President for purchase of foreign currencies, in the case of agricultural and forest research under section 104(k).

In accordance with the budget recommendation that all foreign currency uses be covered by appropriations, we are recommending for 1961 a total of $15.1 million for continuation of the Department's Public Law 480 research program. This is $6.8 million below the $21.9 million available for the current fiscal year.

Here is how the proposed figure for 1961 breaks down: The $3.1 million for market development research is $14.9 million less than is estimated for 1960. This is largely because our surveys indicate that foreign institutions in this field will not have the capacity to carry a much larger program than already provided by the funds made available in 1960. On the other hand, institutions capable of doing agricultural and forestry research have a great deal of unused capacity. So we are proposing an increase of $8.1 million in this area, making a total of $12 million for section 104(k) work. It should be kept in mind that enough funds are obligated at the beginning of each project

to complete the job, which may run as long as 5 years. Therefore, expenditures on an annual basis are substantially less than obligations.

OBLIGATION OF PUBLIC LAW 480 FUNDS FOR CONTRACTS

Mr. ANDERSEN. Just why do you have that, Mr. Peterson, next to the last sentence in there? You said that it should be kept in mind that enough funds are obligated at the beginning of each project to complete the job, which may run as long as 5 years.

Mr. PETERSON. That is right.

Mr. ANDERSEN. Is that consistent with our policy?

Mr. PETERSON. Yes, this is what we have done in the total of this particular project.

In other words, if we have a research contract with a foreign institution that is going to take 5 years to complete and $50,000 to carry on, we would obligate the $50,000 to that project at the time the contract is entered into, so that the funds are assured, for the full contract requirements.

Mr. ANDERSEN. I see. Thank you.

Dr. SHAW. We have no way of predicting what the funds may be in later years, and so we have to insure that the job can be done at the time of the original obligation.

Mr. MICHEL. Going back to this market development research, which is $14.9 million less, that would not necessarily mean—or would it—that there would be a reduction in that program, if it had been heretofore obligated?

Mr. PETERSON. No. The work under contracts obligated in prior years would go right on.

Mr. MICHEL. Right.

Mr. PETERSON. You will recall that this oversea research, financed from foreign currencies received under the Public Law 480 program, was initiated in 1958. It takes time to survey research possibilities in foreign countries, develop sound project proposals, review these proposals, and satisfactorily negotiate final arrangements. Nonetheless, we believe satisfactory progress is being made.

Six surveys have been made of agricultural research potential abroad—three in Europe, two in the Far East, and one in South America. As a result, we have received so far 207 research proposals from 6 countries in Asia, 466 from 7 countries in Europe, and 223 from 6 countries in South America.

Of these 896 proposals submitted for our appraisal and evaluation, 46 percent are in utilization, 36 percent in farm research, 14 percent in forest research, and 4 percent in marketing. As of January 1, 30 agreements had been executed, final documents were being prepared on 20 more, and we had just completed negotiations on 78 other research projects.

Foreign research institutions—with their highly trained scientists, their specialized experience and facilities—are helping us attack some problems that we haven't been able to work on here at home. I would like to emphasize that the research projects are primarily of benefit to American agriculture. They do not duplicate or displace the domestic research activities of the Department or of its cooperators, nor will they reduce the need for regular dollar appropriations for research.

We undertake this work with the close cooperation and assistance of our agricultural attachés and the Department of State.

### STATE AGRICULTURAL EXPERIMENT STATIONS

Our final proposal is for an increase of $1 million to strengthen research at the State agricultural experiment stations. They have especially stressed the need to put more emphasis on research to save our rapidly declining soil and water resources and to bolster our farm forests. The recommended increase will also help the stations to meet the increasing costs of research and to hold present staffs.

The desirability of Federal appropriations as grants for the partial support of research at the State agricultural experiment stations has been recognized for nearly three-quarters of a century.

While the States traditionally provide about three-fourths of this total support for the experiment stations, the Federal grants have been highly effective in stimulating State support and in forging effective Federal-State cooperation, which is so important in the total agricultural research effort. During the current year the States are, on the average, providing $3.50 in non-Federal funds for every dollar they receive in Federal grants.

We recognize, as does this committee, that the land-grant colleges and universities not only perform some of this country's most valuable agricultural research, but also train many of the scientists for such work in the Department and elsewhere. These land-grant institutions must be kept strong, and the healthy Federal-State cooperative relationship we've built up through the years must be kept strong, too.

### THE CHALLENGE TO AGRICULTURE

The farmers of this Nation face a formidable challenge. They will have to do a better job of conserving soils and using available water supplies. They will need higher yielding strains of crops and livestock with specific qualities to meet special market demands. Farmers will need more economical and effective methods of controlling diseases, insects, weeds, and weather; better fertilizer practices, machines, and other production tools. And they will need to fit these improvements together into economical farm operations that are flexible enough to allow adjustments in response to changes in market demands.

Furthermore, agricultural efficiency no longer stops at the farm gate. It extends into the marketplace, the processing plant, the retail store, and the home; wherever farm products are ultimately used. It means efficient and economical methods of handling, processing, and distribution. And it means efficient utilization of all agricultural commodities; whether as industrial raw materials or as consumer end products.

All these things contribute to total agricultural efficiency. And the only way that I know they can be achieved is through agricultural research—pursued vigorously and steadily by both public and private agencies. Agriculture will be as strong as the research that keeps it thriving.

That completes my general statement, Mr. Chairman.

Dr. Shaw and his associates are ready to discuss the work of the Agricultural Research Service and the budget in more detail. We will be glad to answer any questions you have.

REDUCTIONS IN CONTROL PROGRAMS

Mr. WHITTEN. Mr. Peterson, there are two or three things which strike my attention here.

First, I have been discouraged, you might say, during Secretary Benson's administration, at the deemphasis of various control programs and the various programs of carrying out the benefits of prior research.

I strongly believe in research, and I think our record on the subcommittee shows that we do also.

Many of the things for which we do research is to find an answer, but then if we constantly weaken the effort to control the problem, it strikes me that we are failing to use the best at hand insofar as the answers we have gotten in the past are concerned.

It is true that the control programs have not completely gone by the wayside, but it has been because of the action of Congress in restoring these things. For instance, this brucellosis eradication program is one. I well remember in 1953 that the Bureau of the Budget recommended its complete elimination, and it was this committee which restored the funds to set up this program that you mentioned. Not only that, but with regard to many of these other activities that we have carried on for the protection of the public, we have had to do it in the face of the Department's recommendation that it be eliminated.

Here, again, I see the Department's position shifting over to investigation and utilization and various other fields where we would all like to have something done, but doing it at the expense of existing programs.

We have read and have been told by the Secretary and the Department repeatedly that the thing the farmer has to do in the face of constantly decreasing support prices, under the recommendations of the Department, and constantly increasing costs, by reason of the increased cost of labor and increasing profits at the retail level, is to reduce his costs.

DECREASE IN PRODUCTION RESEARCH

If you are going to deemphasize research in production and if you are going to deemphasize efforts to get new varieties of wheat and get these things where you can grow more bushels at a cheaper cost, is he not caught in a trap both ways? On the one hand he has reduced prices, and I believe his price has been reduced by 20 percent, and the share taken by those between the farmer and the consumer has increased that much.

Mr. Wells yesterday showed us that gross farm income is about $2 billion less than in 1951 and that farm production has had to increase from 104 percent of the base period of 1947 to 1949 to 125 percent, but farm costs have gone up $4 billion.

Now, with the same, or relative gross income that the farmer had in 1951, and an increased cost of $4 billion, is this committee in any position to go along with you in cutting and scaling back production research which attempts to help the farmer to grow more cheaply so as to reduce his costs?

That is the way I read your budget.

Mr. PETERSON. Well, Mr. Chairman, the proposed shift of funds in the amount of $700,000 which we have identified, we have, frankly, proposed to take from production research in corn, cotton, and wheat, as well as by closing small or isolated stations and terminating lines of work at locations where financing is inadequate for effective research. Taking feed grains specifically, as I recall the figures since 1930, the percentage of increase in yields per acre has been about 60 percent, and about 40 percent since World War II.

In wheat the progress has been considerably less than that, moving forward about, as I remember, from 14 or 15 bushels an acre to a national average of about 21 bushels per acre.

I do not recall the figures for cotton, but very substantial progress has been made in the productivity and the yield per acre and the efficiency of production of these commodities, with the result that irrespective of the very substantial efforts in moving production into markets and donating them to needy people both at home and abroad, we have great supplies of feed grains, of wheat and of cotton.

It seemed to us, therefore, that if for this budget we could take some of these funds and devote them to a more intensive effort to find out how to use some of what we have accumulated, this would be the prudent procedure to follow.

Mr. WHITTEN. Most of that we found, though, is in various other new commodities, or at least a considerable portion of it.

Mr. PETERSON. I beg your pardon, Mr. Chairman. The shift, as Dr. Shaw explained earlier, the $700,000 specifically was to go into work on the cereal grains. There is some direct appropriation—not shift of funds—and out of that the castor bean work would be done.

PRODUCTION CONTROL

Mr. WHITTEN. To the average layman when he looks at all these commodities which we have, he immediately thinks that, perhaps, some effort to slow down some production and an effort to use what we have made, seems at first blush to be inconsistent. But, the thing I cannot understand—and the arguments have been had pro and con so long that I hate to repeat them—is that the Department's policy with which the Congress has gone along reluctantly is largely the cause of our increased production.

In other words, prices are off about 20 percent, and the farmer quite naturally tries to have more units to sell, and he has proven that he will because the record of the Department clearly shows he has.

Mr. PETERSON. I do not know about that, Mr. Chairman.

Mr. WHITTEN. Here is the position you are in with reference to corn. I do not know whether you subscribe to the position or not, but apparently you are willing to pay $2.24 for 2 bushels of corn and do not need a lot of it, and the Government has to support it, instead of paying $1.40 or $1.50 for the bushel and a half that we need.

The Secretary last year testified that he had all the law he wanted except with regard to feed crops and wheat. What he needed in wheat as I recall was a reduction to about $1.60 a bushel. So, you reduce wheat prices to $1.60 a bushel, and the record shows they tried to grow more bushels in order to make it up.

It seems to me you are willing to take $3.20 for 2 bushels of wheat when you need 1, but you are unwilling to pay $1.75 for 1 bushel, which we do need.

Therefore, what this all, I think, ties back to is the effort to control by acreage and, certainly, by a constantly reduced price, and a constant increase in costs.

It is not a case of stopping improvements in his production, but to make his price support contingent on his holding actual production in line and giving him a fair price for what we need instead of an unfair price for what he produces—unfair to him, and certainly unfair, in my opinion, to the taxpayers.

Mr. PETERSON. Mr. Chairman, I am in no position to dispute your thesis that a lower price stimulates the farmer to try to get more units of production. I am certain that a high price stimulates him also. I think a high price could result provided production were rigorously controlled to precisely what the markets would take at that high price.

The problem is that we have not—any of us, either the administration or the Congress—yet found a practicable way to bring production associated with controls into balance at an agreed-upon and, let us say, high price.

H.R. 9946 AND H.R. 9947 TO AMEND AGRICULTURAL ADJUSTMENT ACT OF 1938

Mr. WHITTEN. Of course, you have not had time to read it, but I gave you a very simple, three-page bill which would do that in this feed area.

Have you ever had time to read it?

Mr. PETERSON. I have read it once.

Mr. WHITTEN. Well, will you please send me a letter as to why it will not work, if you think it will not, or a letter as to why it will work if you think it will work?

Mr. PETERSON. I will be glad to give you that appraisal on it as soon as I have time to study it.

Mr. WHITTEN. I believe it would do what you are talking about.

Mr. PETERSON. Let me say, Mr. Chairman, and this is a personal opinion, I do not know that either the Congress or any administration has ever stated what the national objective in agriculture is, but it seems to me that there is a good deal of agreement that we want abundance. We want a wide variety of all kinds of food at a reasonable price to consumers. We want some kind of a cushion from the fluctuations in production. We also want some reserve capacity. It seems to me that if those are our national objectives, then high price—and those objectives are quite irreconcilable—the problem is to find a way that would be of a minimum cost upon the taxpayer and still assure to the farmer a reasonable return for providing abundance, providing excess capacity, providing carryover stocks, and letting the market distribute where the production goes.

This is what I am sure we all seek—a fair deal for the farmer with those objectives, and the minimum possible burden on the taxpayer. If I had the answer to that one, sir, I would lay it before you immediately.

Mr. WHITTEN. Well, you have, but you just have not read it.

Mr. PETERSON. I have read your proposal, but I have not studied it in detail.

Mr. WHITTEN. You have not studied it.

We shall let that pass for the moment, but we hope you will give serious attention to it.

The point I make is that the Department in 7 years has not sent down any recommendation about getting rid of acreage efforts to control with supports contingent upon actual production.

I have introduced several bills in that connection, and we have a Democratic-controlled Congress, but with the divisions that prevail here and a department which refuses to make recommendations tied to the acreage efforts, which I think have failed, and with the Department's refusal to pay a fair price contingent upon the farmers holding production in line with what we need, in my judgment has cost the American taxpayer something like $6 or $8 or $10 billion. I think it has cost the farmers one-half that much in producing this extra amount.

I know I need to take this up with the Secretary, but you are in the Secretary's office and it is a part of the joint responsibility. So, I am not completely out of order in raising that question here.

Mr. PETERSON. Not at all, Mr. Chairman. You are not out of order one bit. As you know, my immediate area of responsibility quite well consumes my time in the general field of research, and education, and resources management, and conservation, and I have not given the personal study to the economic aspects of the Department's responsibility that otherwise I might like to do.

### REDUCED COSTS RESULTING FROM PRODUCTION RESEARCH

Mr. WHITTEN. Dr. Shaw in times past has given us some figures as to what the cost would have been to the consumer in the absence of production research.

Do you recall offhand the figures you gave us last year, I believe, as to what the food supply would be, and what the food cost to the consumer would be as well as what the farmers income would be? You had some figures on that?

Dr. SHAW. Yes, sir; the figures I gave you were for 1956. In terms of increased costs, if the improvements that we have made in agriculture since 1940 had not been made, and if we were in 1956 producing our agricultural commodities by the same techniques and methods that were available to us in 1940, the cost to the Nation to produce them would be something like $7½ billion a year more than what it did cost in 1956.

We have, of course, made additional improvements since 1956 A large part of the increased efficiency has been passed on to the consumer in lowered food costs.

Mr. PETERSON. Aside from the convenience and variety of the foodstuff, also.

Mr. WHITTEN. I had a series of questions, but I presume you would rather let Dr. Shaw make a general statement. Do you have one, Dr. Shaw?

Dr. SHAW. Yes, sir; I have one.

Mr. MICHEL. Mr. Chairman, after Dr. Shaw's statement, will we have an opportunity to go back and ask questions with reference to Mr. Peterson's original statement?

Mr. WHITTEN. You might ask them at this time, if you care to.

### RESEARCH UTILIZING FOREIGN CURRENCIES

Mr. SANTANGELO. You stated, Mr. Peterson, that the research you were doing in the foreign countries will not duplicate the research done in the United States.

Will you give us several instances of research projects that you are conducting in foreign countries which you are not doing in the United States?

Dr. SHAW. One example of that type is where we have an introduced pest in this country—say, the European corn borer, or some other pest that has come to us from abroad. With such pests, we do not have the natural parasites that are associated with it in its home area. We are not able in this country to do research on those pests that will attack it as could be done over in its homeland. That is one type of research that we would not be able to do here, but could do over there.

There are quite a few projects of that kind where the research work can be done better abroad than here in this country. Such projects include research on insects, and diseases introduced from abroad which affect either crops or livestock; or diseases and insect pests that exist in foreign countries that we do not now have but which we might get.

Mr. SANTANGELO. Would you, Dr. Shaw, put in the record some of those instances?

Dr. SHAW. Yes, sir; we can do it right here, but we are going to have a separate statement to present on the foreign research work and we could give all the details at that time.

Mr. SANTANGELO. Well, I will forego it at this point, and put it in its proper context.

### SOIL AND WATER CONSERVATION LABORATORIES

Mr. SANTANGELO. One other thing, Mr. Peterson:

On page 18 of your statement you have set forth the challenge to agriculture and the fact that the farmer will have to do a better job of conserving soils and using available water supplies.

I understand that one of the Congressmen from my State has written to the Secretary of Agriculture with respect to a request for a soil and water research center in New York State.

I also understand that the Senate investigation has recommended that a soil and water research center be placed either in Pennsylvania or in the State of New York.

I do not see in your budget any provision for a soil and water research center in the State of New York or in the State of Pennsylvania.

Can you tell us what disposition you are going to make with respect to that request, and what are the factors involved?

Mr. PETERSON. There have been requests from a great many Congressmen of the State of New York and, I believe, from both Senators, for a facility in New York. You recall that 2 years ago the Senate committee asked us to report on our needs for facilities and support

for soil and water conservation research. We filed a report after a comprehensive study by a group put together under the Agricultural research service, and that was published as Senate Document 59.

Mr. SANTANGELO. That is the document to which I was referring.

Mr. PETERSON. That recommends a number of both regional and specialized facilities—physical facilities—with the attendant operating requirements.

It has been our view that the first thing we should do if funds become available, as I have expressed to this committee several times, is to see that our existing stations are fully manned. By that I mean that there is the subprofessional and nonprofessional help available so that the maximum productivity can be obtained from the professional scientific workers presently employed.

Beyond that, if funds become available, then we should add to our capacity in this area. I can only say that this current budget does not propose additional facilities in this area, because the funds were not available to us to allot for that purpose.

Mr. SANTANGELO. Senate Document 59 to which you referred indicated that there was a need and that there should be located in one of these watersheds in the Pennsylvania or New York area a soil and water conservation research center.

In view of that recommendation which you have just stated, and the recommendation as a result of this study, can you tell us when you think we might be able to set up that soil and water program in the State of New York or in Pennsylvania, and put it into operation?

Mr. PETERSON. No; I cannot. It would depend on what funds become available for agricultural research generally and for soil and water research specifically. Let me put it this way:

If the procedure which I think is wise is followed, that is, strengthening existing facilities so that we can expect a maximum productivity of our presently employed professional personnel as a first order of business, based on past history, I would assume it would be anywhere from 3 to, perhaps, 6 years before provision for such a facility would be advanced to the Congress.

This is an estimate on my part.

I do not know what the time element will be.

Mr. SANTANGELO. In the meantime, I think the farmers, not in my area, but in the State of New York, would have to wait and, perhaps, have irreparable damage done to their soil.

Mr. PETERSON. I do not think that implication should be left in the record, Mr. Santangelo, for this reason: There is presently, both by the Department of Agriculture itself and by the State agricultural experiment stations, a considerable body of research being conducted into soil and water problems generally. New information is being developed each year, not so much as we have indicated by our report to the Senate committee as the Nation needs, but still a substantial body. So there are techniques becoming available which are added to the present body of knowledge year after year, even though the facilities which we recognize as being desirable and needed are not contained in this budget and, as I suggested to you, may not be carried in a budget for several years to come.

Mr. SANTANGELO. I am happy that you clarified the record. I did not intend to make any implication other than that which is justified by the facts.

I will take it, then, that in view of your statement that there is not any particular danger to the State of New York?

Mr. PETERSON. I would not want to say that, either. If we were able to move immediately and implement this report, obviously the body of knowledge and new techniques that are added to the present body of knowledge available would be substantially expanded and available for use, and on the assumption that it would be used, more careful conservation management of soil could reasonably be anticipated to result.

In other words, the progress is not so rapid at the present level of effort as it would be if that level of effort were expanded. So, there is some danger. I would not want to say there is none, but there is some danger resulting from the time factor involved in further extending our knowledge of techniques and procedures and practices which would tend to conserve both the physical stability of the soil and its inherent productive capacity.

Mr. SANTANGELO. Thank you, Mr. Chairman.

### PROJECTS FINANCED FROM FOREIGN CURRENCIES

Mr. MICHEL. Mr. Peterson, I would like to go back to the subject which Mr. Santangelo just touched upon and which concerns me somewhat with respect to utilizing foreign currencies in our research program.

In our Department of Commerce Subcommittee we denied the use or the authorization of $5 million in this same area which the Weather Bureau and the Bureau of Standards wanted to use. Heaven knows, I wish there were an opportunity for us to get some good out of these foreign currencies, but I would hope that there would be a resultant savings in dollars.

I see by your statement on page 17 this statement:

> Nor will they reduce the need for regular dollar appropriations for research.

So, here again we find the use of these foreign currencies in our research program being used apparently for just secondary research projects.

If those funds were not available, or I gather from this statement if these funds were not available, we would not even be interested in this area.

Am I wrong in that assumption?

Mr. PETERSON. We would be interested in the area of research that we are presently conducting, Mr. Michel. The facts are in my judgment, and from the information that I have and information or observations I have made, that the whole posture of agricultural research capacity—State and Federal combined—is not sufficient to answer all of the problems that all agriculturalists, farmers, processors, and others have.

As Dr. Shaw pointed out a few moments ago, some of the research that we are doing with these foreign currencies is important to this country, but it is research that we could not do within this country as well as we could do it abroad.

Mr. MICHEL. Do we not have to assume that in these foreign countries that their scientists or research people will be working in conjunction with our own people?

Mr. PETERSON. Well, not necessarily. We will not put our own research people abroad. We arranged, as we testified before the committee previously, a central office in Rome to supervise our research being done in Europe and the Near East under this program, but the research workers are foreign research workers in foreign countries.

Mr. MICHEL. Then we would certainly have to assume from that, or it would follow, that these foreign research people would be deriving a direct benefit from, or their countries would be deriving a benefit from, research which is being financed by American dollars.

Mr. PETERSON. It may well be.

Mr. MICHEL. Then, it seems to me that that ought to be part of our foreign-aid program, or we should be given credit for foreign aid in an indirect sort of way rather than charging it up against agriculture, because, apparently, foreign countries will be deriving more benefit from it than we will.

Mr. PETERSON. That does not necessarily follow. I could not say that a foreign country would not derive benefit from these projects financed with the foreign currencies available to us from sales of commodities under Public Law 480.

However, the research projects are carefully reviewed by our own people before they are entered into, and they are only entered into where there is demonstrable benefit to American agriculture and known needs by American agriculture.

### REDIRECTION OF FUNDS FROM PRODUCTION RESEARCH TO UTILIZATION RESEARCH

Mr. MICHEL. The other question I have is actually in the form of a commendation to the Department, and to you people for shifting your emphasis from production research to utilization research, because it is my own considered opinion that after 6 or 7 years of accumulating surpluses, that we should be much more responsive to change. Instead of trying to find out bigger and better ways to grow more, we ought to have been thinking here years ago as to how to utilize what we have.

So, I commend the Department for apparently making somewhat of a shift of emphasis here in the amount of money that is going into utilization research.

Mr. PETERSON. I appreciate that, Mr. Michel, and your point of view.

I would like to comment, however, on your observation that our production research is pointed at finding as you say better and bigger ways to grow more. This is a very generally held point of view. I regret that it is so widely held, because most of our production research is not per se pointed at producing more. It is pointed at protecting our present ability to produce what we are producing. It is pointed at finding out facts about fertilizer, for example, so that the proportion of fertilizer to the end product is less and the cost to the grower is thereby less for fertilizer.

Our entire area of research in plant pests and diseases is not pointed at how do we get more, but how do we protect what we do grow. There is presently, for example, I believe, some 10 million acres of crop abandoned each year because of weather hazards. A good deal of our research—and it should in my opinion be extended—is pointed

at how do we grow varieties that are resistant to heat, drought, and cold so that when the farmer plants a crop, he can have some assurance of harvesting what he plants.

I must object to the idea that we are primarily interested in growing more. Increased yields have been a byproduct, and that is true about not research alone, and public research specifically, but of efforts by fertilizer manufacturers and by chemical and pesticide manufacturers, and by the manufacturers of irrigation equipment, all of whom are trying to find ways to sell their products to farmers. The only way they can sell them is to show the farmer some benefit. So, this surge of production ability has been a combination of many things. But, I cannot accept the responsibility for research that research is pointed only at producing more and more and more.

Mr. MICHEL. But, it has the same effect indirectly. If you cut down on the plant diseases and one thing and another, obviously what would normally be killed is going to grow.

Mr. PETERSON. This is a fact, and it is true. As Dr. Shaw pointed out, were we today using the same methods of production that we used in 1940, the cost would be many billions of dollars more upon farm producers than they presently are.

Mr. MICHEL. And am I right in assuming that by shifting emphasis there is a possible danger of costliness in stops and starts in the area of research, or would this be negligible?

Mr. PETERSON. It would be negligible in my judgment. Dr. Shaw, would you like, perhaps, to elaborate upon that?

Mr. MICHEL. It is not so much a shift of emphasis which would bring about suffering costwise, but what we commonly know as the costly stop-and-start method of operation.

Dr. SHAW. About one-half of the proposal would be to discontinue things that our scientists think have served their purpose. The other half would be in low priority work in things that we ourselves would continue if we had the money.

Mr. MICHEL. But if the necessity arose, you could come back again without any considerable loss of time and effort?

Dr. SHAW. Work at some locations will be discontinued—but the work could be expanded in other locations; yes, sir.

Mr. MICHEL. That is all, Mr. Chairman.

Mr. WHITTEN. Gentlemen, we might turn, then, to Dr. Shaw's statement.

Dr. Shaw, we are always glad to hear from you.

## GENERAL STATEMENT OF ADMINISTRATOR, AGRICULTURAL RESEARCH SERVICE

Dr. SHAW. I would like to report on our activities during the past year, mentioning some of the highlights of our research and regulatory work, and several administrative and other developments I believe will be of special interest to this committee.

Mr. Peterson spoke of the progress being made in the brucellosis and fire ant programs, and of the successful campaign to eradicate the screwworm from the Southeastern States.

### VESICULAR EXANTHEMA, HALL SCALE, CITRUS BLACKFLY

I am pleased to report that we officially announced, this year, the eradication of three other important agricultural pests—vesicular exanthema disease of swine, the Hall scale insect pest of fruits and nuts, and the citrus blackfly. The Agricultural Research Service is proud of its contribution to these cooperative State-Federal achievements. Getting rid of these pests is another advance in our efforts to help farmers cut costs and give consumers top quality products.

### KHAPRA BEETLE

We're making good headway, also, in the effort to eradicate the khapra beetle. Although 59 new infested sites were found during the year, we have stepped up our operations so that we are now able to fumigate infestations as soon as they are discovered. Since the opening of the St. Lawrence Seaway, we have extended khapra beetle surveys to include port cities on the Great Lakes, in order to guard against possible introductions of this pest into the Midwestern area.

### PORT INSPECTIONS

As Mr. Peterson pointed out, our inspectors had a busy time at all U.S. ports of entry last year. They inspected 192,000 planes and ships, 21 million vehicles, and more than 21 million pieces of luggage—and intercepted over 300,000 lots of unauthorized plant materials. More than a million head of livestock were examined, and nearly 22,000 were refused entry. A billion pounds of imported animal products were inspected to assure freedom from disease or other contamination. As a result of all these efforts, I'm glad to report that to our knowledge no foreign crop or livestock pests gained entry into this country last year.

What this means to farmers is apparent when we consider the problems now being encountered with witchweed and the soybean cyst nematode—two foreign pests that became established in this country a few years ago.

### WITCHWEED

This past year, witchweed was found in three additional counties in North Carolina and one in South Carolina, bringing to 22 the number of counties in which this destructive plant parasite has been found. There is some encouragement, however, in the fact that the new infestations were in areas immediately adjoining those already infested, which means that the pattern of spread has not changed. All known infestations are under control treatment—either by the use of catch crops or with herbicides.

### SOYBEAN CYST NEMATODE

The appearance of the soybean cyst nematode in Illinois a few months ago makes eight States that now contain infestations of this pest, for which there is no known method of eradication. Quarantines are in effect in all infested areas in an effort to contain the nematode, while scientists search for ways to prevent, control, and eradicate it.

We have nematocides that look promising in the laboratory, and these are now being tried out in large-scale field tests. If we are unable to achieve eradication of this pest, our best hope over the long term will be to develop resistant varieties of soybeans. Plant breeders have found resistant material and are pretty well along in transferring the resistance to commercial varieties. We should have nematode-resistant soybeans in the hands of growers within 5 to 6 years from now.

NEW CROP VARIETIES

Breeding for resistance to diseases and other pests is fast becoming the top priority in much of our crops research. Of the 90 new varieties of crop plants released to farmers this past year, more than half were developed with specific disease resistance in mind.

The new Burley 37 tobacco, for example, provides the first combination resistance to black shank and wildfire. Pee Dee 611 is the first flue-cured tobacco resistant to the root-knot nematode.

We released a new midseason strawberry, with resistance to red stele disease, for use in the eastern United States. This new variety—named Midway—retains the good quality and yielding ability of the older, susceptible varieties it replaces.

The new Cody alfalfa gives farmers in the Central Plains and eastward their first variety with resistance to the spotted alfalfa aphid. Cody produces as much forage as older varieties in insect-free areas and also stands up under bacterial wilt and several other diseases.

We must also consider many other problems in developing improved crop varieties. For example, new dwarf hybrid castor beans released during the year are resistant to lodging and easier to harvest with machines. They yield as well or better than the best tall varieties and promise to entirely replace the highly productive tall varieties formerly grown in California and Arizona. In fact, this research development removes one of the last limitations on castor bean production on irrigated lands in the Southwestern and Western States.

I am furnishing, as attachment No. 1, a complete list of the 90 new varieties released during the year. Practically all of them were developed and released cooperatively with the State experiment stations. With your permission, I offer this attachment for the record.

(The attachment is as follows:)

ATTACHMENT NO. 1

NEW VARIETIES OF CROPS RELEASED IN 1959 BY THE AGRICULTURAL RESEARCH SERVICE IN COOPERATION WITH STATE AGRICULTURAL EXPERIMENT STATIONS

*Four tobaccos*

Burley 37, with first combination resistance to black shank and wildfire.

S.C. 58, a flue-cured tobacco with resistance to black shank and quality characteristics better than old line varieties.

N.C. 73, a flue-cured tobacco with black shank resistance and quality characteristics of old line varieties, adapted to the northern flue-cured region.

N.C. 75, a flue-cured tobacco carrying resistance to black shank, black root rot, and fusarium wilt, in combination with quality characteristics of popular old line varieties.

*A sweet sorghum*

MN 2960, a stabilized selection from the species *Sorghum roxburghii* that has proved adapted to cool, wet conditions.

*Five sugar beet hybrids*

US H–2, outstanding in gross sugar yield in the Imperial Valley. It yields about 20 percent higher than the standard variety US 75.

US H–3, outstanding in sucrose percentage and adapted to those regions where sucrose tends to be low, particularly in the coastal areas.

US H–4, high in sucrose and adapted to late plantings in the central valleys of California.

US H–5A, high in bolting and mildew resistance with a high sucrose content.

US H–5B, also high in bolting and mildew resistance, but with somewhat higher root yield than US H–5A.

*Two clovers*

Lakeland, a red clover, highly resistant to powdery mildew and northern anthracnose diseases. In Wisconsin, it has outyielded all other varieties and has performed well in other Lake States, the New England States, and Canada. The mildew-resistant characteristic is particularly valuable in areas where the disease is serious, and the clover usually produces a crop through 2 harvest years.

Chief, a crimson clover, with superior seed and plant characteristics. It has small seed size, is consistent in percentage of hard seed, excels in seedling vigor, produces large plants with deep color, and is less sensitive to clipping or grazing than other varieties. Chief is adapted to the southeastern quarter of the United States, where it is grown alone or in combination with grass for pasture or cover crop.

*A bermudagrass*

Royal Cape, a new variety for lawn use in the Imperial Valley and Lower Colorado River Basin. Royal Cape is recommended in the area for its late fall and early spring growth, ability to grow on saline soils, color, texture, and vigor.

*A lupine*

Blanco, a blue, sweet, low-alkaloid variety, readily distinguishable from other lupine varieties by its white flowers, seed, and pure green foliage. It is distinct from other sweet, blue lupine varieties that have become mixed with poisonous, high-alkaloid plants making their use for grazing dangerous to livestock.

*An alfalfa*

Coty, with resistance to the spotted aphid and adapted to the Central Plains and eastward where other resistant aphid varieties are not suited. It produces as much forage as older line varieties in insect-free areas and is resistant to bacterial wilt and tolerant to other lesser diseases.

*A flax*

New River, a flax highly resistant to wilt in California and Arizona, and with satisfactory yields on wilt-infested or disease-free soil. Its oil content is more than 2 percent higher than that of the variety now being grown.

*Two safflowers*

Gila, resistant to root rot in Arizona. It has high oil content of the seed, mid-early maturity, and high yields in the first field scale trials. This variety may make it possible to grow safflower under irrigation in the Southwest.

U.S. 10, resistant to root rot in California and Utah when grown under irrigation. It is as high in yield and oil content as the most widely grown commercial variety, and is expected to be grown on much of the acreage in California, Nebraska, Montana, Utah, and Idaho.

*Seven dwarf castor-bean hybrids*

The short stature of these dwarf-internode hybrids makes them more resistant to lodging and easier to harvest mechanically. They are as productive as the taller normal-internode varieties, and promise to remove one of the last barriers to castor-bean production in the Southwest.

*Two soybeans*

Hill, resistant to all major foliage diseases of soybeans, particularly bacterial pustule, wildfire, frogeye, and Phytophthora rot, which attacks the roots and stems. It is resistant to purple seed stain and has some resistance to root-knot nematode. Hill is adapted for a later maturing variety in Delaware and Maryland and an early variety farther south, especially in the Mississippi Delta.

Ford soybean is resistant to lodging and produces high yields in Iowa, Nebraska, and South Dakota. It is equal or superior to the other varieties in other im-

portant characteristics and promises to increase the efficiency of soybean production in these areas.

*Six wheat varieties*

Wells and Lakota, the first durum wheats with short straw, early maturity, combined with resistance to known forms of race 15B and other races of stem rust prevalent in the durum area. Lakota has a slight advantage in test weight, and Wells in rust resistance. Adapted to the durum-producing area of North Dakota, South Dakota, Minnesota, and Montana.

Aztec, a Hard Red Winter wheat with stiff straw, nonshattering heads that produce grain of high weight per bushel, with good to excellent milling and breadbaking quality. It is particularly well suited to the semiarid wheat areas of eastern New Mexico.

Tascosa, a Hard Red Winter wheat with short stiff straw, good yield and plant characteristics. This variety possesses very high quality for breadmaking purposes and produces grain with exceptionally high weight per bushel. It is adapted to northern and western Texas.

Wakeland, a Soft Red Winter wheat with soil-borne mosaic resistance, adapted to North Carolina. The variety produces good quality grain, especially suited to production of family trade flour.

Monon, a Soft Red Winter wheat with short straw, early maturity, and resistance to leaf rust, hessian fly, and soil-borne mosaic. Adapted to Indiana and the Ohio Valley.

*Four oat varieties*

Goodfield, a short, stiff-strawed, medium-early variety, producing grain of high test weight and low percentage of hulls. It is resistant to all prevalent races of crown rust, to all races of stem rust except 13A, to loose and covered smut, and is moderately resistant to Septoria. It is especially suitable for fertile soils in Wisconsin and nearby States.

Clintland 60, a medium-early, stiff-strawed variety with high test weight and resistant to smut, most races of crown rust, and all races of stem rust except 7A. Adapted to the Indiana area.

Tonka, an early maturing, yellow-dwarf-resistant spring oat. It is outstanding for high bushel weight, high yield, and superior straw strength. Adapted to the Oklahoma area.

Curt, a short-strawed red oat variety adapted to hay, pasture, and grain production in California. It is 60 percent as tall as other varieties, but equals hay production of taller plants, and yields some 25 percent more grain. It is resistant to lodging and shattering, and to yellow dwarf and stem rust diseases.

*A barley*

Blanco Mariout, similar to California Mariout, the most widely grown barley in California (57 percent of production), differing only in that it has a colorless aleurone, an attribute which makes it more desirable for the export trade.

*A rice*

Gulfrose, a new medium grain rice resistant to the virus disease Hoja Blanca. It compares favorably with standard medium grain varieties in milling quality, processing characteristics, yield, and reaction to other diseases. It is adapted to the Texas area.

*Three grain sorghum hybrids*

KS 602, a hybrid of good combine height, with light-red grain of good test weight and superior resistance to lodging and charcoal rot. It is equal in yield to other hybrids.

KS 603, similar to KS 602, but does not stand as well and is not as resistant to charcoal rot. However, it has generally outyielded 602 and some of the other hybrids.

KS 701, a hybrid with red grain and of good test weight, with outstanding yielding ability particularly under irrigation, and resistant to charcoal rot.

*Five varieties of lettuce*

Valverde, a new, crisp head lettuce of desirable quality for the Lower Rio Grande Valley. It is unique in having high resistance to downy mildew, which has been threatening destruction of the lettuce industry in the valley.

Climax, a very large, thick-leaved, fairly slow-bolting, tipburn-resistant head lettuce. It is intermediate between the Great Lakes and Imperial varieties, and best adapted to winter culture in the Imperial Valley.

Vanguard, a distinctly new head lettuce variety resulting from nearly 30 years' work on hybrids between common lettuce and a wild species, *Lactuca virosa*. It is very large, slow maturing, tipburn resistant, and of good quality.

Golden State C and Golden State D. These head lettuce varieties resemble the earlier introductions Golden State A and B. They have creamy-white interiors more desirable than the paper-white heart of Great Lakes, produce more seed, and have a better appearance when packed.

*Three onions*

Empire, an $F_1$ hybrid onion of a high-yielding storage type similar to Yellow Globe. It has keeping quality superior to Yellow Globe.

Onion Inbred U 16–3–10 A and B. An early maturing, long-day, storage type suitable for combining with Yellow Globe or Sweet Spanish. Suited to countrywide use. It was derived from the onion variety Cochise Brown.

Onion Inbred U 16–3–11, A and B, derived from Cochise Brown, is similar to U 16–3–10 and combines well with Sweet Spanish. Suited to countrywide use.

*Two potatoes*

Catoosa, adapted for use in the southern potato-growing areas. It is the first red variety released with resistance to both scab and late blight. A medium-early, high-yielding, smooth variety.

Blanca, a scab-resistant potato variety for the Southwest, where such a variety is required. It has been outstanding in yield and quality.

*A sweetpotato*

Apache, a high-quality, orange-fleshed sweetpotato variety for use in irrigated sections of the West and Southwest. It has some resistance to black rot and root-knot nematode.

*A cabbage*

Badger Shipper, an early round, relatively small variety with resistance to clubroot and yellows. Its use will probably be limited to localities where clubroot is a problem. (Released for increase only.)

*A strawberry*

Midway, a virus-free red-stele-resistant replacement for Temple and Fairland. Midway is a very promising midseason, firm, medium-sized, dark-red berry with glossy surface, for both the dessert and frozen-pack trade.

*A blueberry*

Collins, an early large-fruited variety; fills the gap in the ripening season between Earliblue and Bluecrop. Equal in size to Earliblue and to Berkeley in winter hardiness.

*Three bunch grapes,* for southwest Great Plains

Osborn, black-fruited, medium-sized berries, ripening August 5 to 30.

Keating, white-fruited, high-quality table grape, ripening July 31 to August 18.

Chilcott, red-fruited, muscat flavored, ripening August 3 to September 5.

*A muscadine grape, for southeastern United States*

Magoon, reddish purple, early midseason with better flavor and higher solids than other varieties ripening in its season.

*Two peaches*

Suncrest, a high quality, attractively colored, firm fresh-market peach. It ripens midway between Redglobe and Elberta, filling a very important gap, and is very promising as a fresh fruit shipping peach.

FV–234–1, resistant to two nematodes that produce galls on Lovell peach. (Released for peach rootstock.) Young plantings of several peach varieties on this rootstock indicate that it produces vigorous, high-producing trees.

*Three pre-Christmas season tangerine hybrids for the fresh fruit trade*

Robinson, a bright orange-red sweet tangerine hybrid ripening in October and November.

Osceola, a high-colored orange-red tangerine hybrid ripening in November and December.

Lee, a temple-type fresh-fruit tangerine hybrid ripening in October and November.

These fruits ripen in the pre-Christmas season when only pale colored round oranges with poor juice color and low solids are available. They are very attractive and enthusiastically received by the trade.

*Two pecans*

Choctaw combines productiveness and tree vigor with high nut quality and holds much promise for the southern pecan area. It is suitable for machine and hand cracking, and makes a very attractive half nut.

Wichita combines unusual tree vigor with corresponding heavy production. In the western pecan areas subject to poor foliation and poor filling of nuts, Wichita has well-filled, high-quality nuts.

*Nine azaleas, 3 to 5 feet tall*

Flash, with dense growth and semipersistent glossy dark green foliage; flowers are single, from 1 to 1½ inches across and deep red.

Green Eyes, with compact plants and dark green, persistent foliage; the white flowers are double, from 3 to 4 inches across, with a green blotch in the center.

Shocking Pink has medium growth with semipersistent foliage; the single pink flowers are about 3 inches across.

Alpine, a compact grower with glossy dark-green persistent foliage; the double white flowers are about 2½ inches across.

Casablanca produces well-branched plants with persistent dark green foliage; the single white flowers are from 1½ to 2¼ inches across and are borne in clusters of three to seven.

Northland produces a dense growth with dark-green persistent foliage; the white flowers are ruffled and about 1¾ inches across.

Whitecap grows moderately branched with persistent light-green foliage; the single white flowers are about 2½ inches across.

Flirtation forms an erect growth with semipersistent dark-green leaves; the double-purple flowers are about 2½ inches across.

Sanguinaire branches freely from the base, producing dark-green persistent foliage; the dark-red single flowers have darker spots in the throat and are about 1½ inches across.

*Eight dwarf azaleas*

Little White Lie, very dwarf, 6 to 8 inches tall, with semipersistent foliage; the white double flowers are about 1 inch across.

White Doll, very dwarf and compact, loses most of its foliage in winter and bears single white flowers 1½ to 2 inches across.

White Elf, very dwarf with glossy dark-green persistent foliage; the single white flowers are 1 to 1½ inches across.

Pinkette, a dwarf variety that loses its summer foliage in winter; the single bright pink flowers are from 1 to 1½ inches across.

Leprechaun, very dwarf with semipersistent dark-green foliage; the single lavender flowers are about 1½ inches across.

Orchid Belle, very dwarf, losing its foliage in winter; the single orchid flowers are a slightly deeper color in the throat and are about 1½ inches across.

Pequeno, very dwarf with semipersistent dark-green foliage; the double salmon-colored flowers are about three-fourths of an inch across and are borne in clusters of 3 bunched into rhododendron-like heads.

Salmon Elf, very dwarf, losing its foliage in winter; the double salmon-pink flowers have a dark spot in the center.

*Five chrysanthemums for the Rocky Mountain States*

San Saba, produces strong upright stems with five flowers per stem; the sulfur yellow flowers are double and about 2½ inches in diameter.

Maverick, a strong-stemmed plant with one flower per stem; the magenta purple flowers are fully double and about 2¾ inches in diameter.

Buffalo, a slow-growing cushion type with four flowers per stem; the fully double flowers are bronze in color and about 2 inches in diameter.

Bridger, a dwarf cushion-type with four flowers per stem; the double pink flowers are about 2 inches in diameter.

Togwotee, long stemmed, bearing six flowers per stem; the fully double-red flowers are 2¾ inches in diameter.

*A broad-leaved evergreen shrub*

Gulftide (*Osmanthus ilicifolius*), a broad-leaved evergree shrub with multiple stemmed, compact habit. This evergeen is well suited as an important landscape plant in the warmer parts of the United States.

### NEW TOBACCO RESEARCH TOOL

In plant breeding, it is necessary to eliminate undesirable features, as well as to incorporate desirable ones. Many strains of tobacco, for example, contain nornicotine, a genetically controlled constituent that causes an objectionable aroma in tobacco smoke. The substance is formed from nicotine during yellowing of the leaves. Until recently it has been assumed that nornicotine could not be chemically detected until after tobacco plants had grown to maturity and been cured. In variety development this meant a long wait before plants in each experimental planting could be selected for further crossing. We have been working on this problem for several years, in cooperation with the North Carolina and Kentucky Experiment Stations and the tobacco industry. During the past year our scientists found that an accurate analysis can be made of the lower, yellowing leaves long before the plants flower. As a result of this finding, strains containing nornicotine can now be eliminated early in the breeding process—and thus greatly speed the development of new, improved varieties of tobacco.

### NEW CROP BREEDING LINES

In addition to the 90 new crop varieties released last year, about 100 new breeding lines, developed in basic studies, were released for use by both public and private plant breeders in building new varieties and new hybrids. We believe this is an especially effective way to encourage cooperation by industry in crop-improvement work.

### MAJOR DISCOVERY IN PLANT PHYSIOLOGY

In terms of crop improvement over the long term, the most significant discovery of the past quarter century was reported during the year in plant physiology. This was the isolation, by Department scientists, of the plant pigment that controls the responses of plants to light. Earlier research had indicated that plant-growth processes are governed by a reversible chemical reaction, which, in turn, is controlled by the color and intensity of light striking the plant. But the only way of detecting this photoreaction was through observation of the results—for example, flowering, stem elongation, or seed germination. Isolation of the pigment now makes it possible to study the reversible light reaction outside the plant, and thus move faster toward a better understanding of the role of light in plant development. This basic discovery is a starting point from which we may eventually learn how to control plant growth all the way from seed germination through flowering and fruiting.

### ANIMAL DISEASE RESEARCH

An important breakthrough has also been made in basic research on one of our most important animal diseases—shipping fever complex of cattle. This disease condition is becoming increasingly widespread and severe. During some years it kills more cattle than any other disease. Although we've known that many things are involved, the primary cause of shipping fever has never been determined.

Just recently, scientists succeeded for the first time in isolating and identifying a virus in a substantial number of shipping fever cases.

The virus produces clinical symptoms for only a short time and is thought to be one of several agents that make up the disease complex. State and Federal scientists are now conducting studies to determine the prevalence of the virus in shipping fever cases throughout the country. If it proves to be the "common denominator" of the problem, we will be a step ahead in our efforts to better understand the disease and thus to develop more effective ways of combating it.

### ENTOMOLOGY RESEARCH

Entomologists searching for improved methods of controlling insects have developed a new technique in which male insects are lured to poisoned bait by a special attractant. By destroying the males, reproduction is halted and the insect population is reduced or eliminated. The method is similar in its effects to male-fly sterilization, which was used so successfully in the screw-worm eradication campaign.

Studies with a powerful male-insect attractant, methyl-eugenol, indicate much promise for this technique as a means of eradicating fruit flies. Plans are shaping up now for a test in the Bonin Islands in the western Pacific, where natural infestations of the oriental fruit fly occur. The methyl-eugenol, mixed with a suitable material to kill the male flies, will be impregnated on small squares of absorbent fiber board and spread over the islands. If the test is successful, we will have demonstrated an effective and economical method of controlling these and perhaps other insect pests, with little or no problem of insecticide residues.

### SOIL AND WATER CONSERVATION RESEARCH

In soil-conservation research, a simple numerical method—applicable throughout the country—has been developed for predicting the potential of rainfall to cause soil erosion. The method is based on studies which showed a predictable relationship between soil loss and the energy and intensity of rainfall during storms. Adding together the figures for all storms during a given period provides a rainfall-erosion index for a particular location. Data needed for the calculations can be obtained from rain-gage records kept continuously for a sufficient period of time to provide a normal annual figure.

In cooperation with the Weather Bureau, we are now evaluating rainfall records at 125 Weather Bureau stations—and at 25 of our own field locations—throughout the humid regions of the United States. The results, which will be published as they are completed for each region, give Soil Conservation Service technicians a much-needed tool for use in developing conservation practices that will hold the soil during periods of heavy rainfall.

### HOME ECONOMICS RESEARCH

In home-economics research we are continuing to gain a better understanding of the role of fats in human nutrition. In two parallel lines of study, scientists are investigating the function of dietary fats in the metabolic processes of the body, and the amounts and kinds of fatty acids (components of fat) in foods commonly included in our diets.

Among the studies reported this year was one which showed that the amount and kind of fat in the diet of rats may have less effect on body storage of fat than does the type of carbohydrate. Another study with rats showed that the type of carbohydrate eaten plays an important part in the prevention of fatty livers, damaged kidneys, and high cholesterol levels in the blood. These and other findings point up the importance of learning about all the different classes of food in terms of their constituents and their effects on composition of the blood and the structure of body tissues.

Three publications giving composition data on fats in various foods were issued during the year, for use by researchers and by dietitians, nutritionists, and others who plan and evaluate diets.

All of this work is part of our program to learn how food may be used most effectively. It is of increasing concern both to agriculture and to the consuming public.

### UTILIZATION RESEARCH

Among the highlights in utilization research was the announcement of the first major modification in the cotton carding machine since its invention 200 years ago. Commercial mill tests show that the new card saves much of the spinnable cotton fibers normally removed as waste by conventional carding machines and lowers manufacturing costs. Although the design for the new machine was released to industry only last March, 15 machinery manufacturers have been licensed to produce it, and around 85 machines have already been installed in textile mills.

Two companies have begun semicommercial production of dialdehyde starch—using the improved two-stage electrolytic process developed by ARS. Utilization research has demonstrated most interesting industrial possibilities for this cornstarch chemical in leather tanning and as an agent for producing wet-strength paper. Other promising outlets include adhesives and binders, oil-well-drilling additives, gelatin conditioners and film hardeners, textile processing aids, and chemical intermediates. We have been told there has been an unusually high industry response to advertisements of the availability of dialdehyde starch and that the two manufacturers are expanding production.

A sizable expansion in our export market for soybeans may well result from an improved process for preparing two of Japan's most important foods—miso and tofu. The process was developed at our Peoria Laboratory, with the cooperation of two scientists from Japan. By using soybean grits, produced by cracking the beans and removing the hulls—which have little food value—the researchers increased protein content and uniformity of the food product, eliminated the dark eyes, and reduced soaking and cooking time. The latter are things found objectionable in many U.S. soybean varieties by Japanese food producers, who conventionally prepare these foods from whole beans.

At present, most of the 35 million bushels of soybeans we export annually to Japan are used by them for oil extraction. However, the Japanese Government has initiated a plan to improve the population's protein intake by increasing consumption of soybean foods some 40 percent in the next 10 years. And we believe the new research devel-

opment will put U.S. soybeans in a better position to meet Japanese requirements.

Progress is also being made in studies on the constituents in tobacco and tobacco smoke and their relation to the qualities preferred by consumers. During the past year, three new sterols were isolated and identified, making a total of five that have been identified for the first time in tobacco leaf. The development of a specific analytical method for isolating the paraffins in leaf tobacco is making it possible to more accurately identify these substances, which are closely related to the smoking quality of tobacco.

In studies of cigar smoke, the aldehydes and ketones—which are associated with the aroma of the smoke—have been isolated, some of them also for the first time. The work with cigar smoke is in cooperation with the Cigar Manufacturers Association, which is financing two fellowships at our Philadelphia Laboratory.

The objective of our work on tobacco composition is to contribute to a fuller understanding of tobacco chemistry, which is urgently needed by plant breeders and manufacturers in producing tobacco and tobacco products that meet consumer demands.

### FEDERAL-STATE-INDUSTRY COOPERATION

As you are aware, most of these accomplishments have resulted from the joint efforts of ARS, the State experiment stations, State departments of agriculture, and industry. A large part of ARS research is cooperative with State experiment stations and much of this is conducted in facilities provided by the States.

You will recall that last year the committee stressed the importance of obtaining greater cooperation from industry in agricultural research. In this connection, I'm pleased to report that funds and facilities used by industry in support of ARS research have increased by two-thirds during the past year, from $2.7 million to $4.5 million.

Funds contributed by industry for use by ARS have also increased substantially. Last fiscal year, we received approximately $296,000 from this source. This year, the figure has already risen to slightly more than $400,000, and may exceed $500,000 by the end of the year. These funds are set up under formal agreements. For example, under one agreement, a private organization has contributed $149,500 to help pay the cost of developing an electronic system for processing records under the national dairy herd improvement program. This work is now underway in New Orleans, where we are using equipment and operators furnished by the Commodity Stabilization Service on a reimbursable basis.

### ADMINISTRATIVE DEVELOPMENTS

We have made a number of administrative changes in our research programs this year, in order to work on problems of greatest urgency and to absorb increased costs of operation.

To most effectively achieve program objectives and best serve the public interest, we maintain a continuing review of all our projects. During the year, we have closed out completed or unpromising work, and in many areas we have redirected funds from less urgent work to research on problems that are more critical at this time.

SHIFTS IN PROGRAMS

For example, we have begun studies to learn if male-insect sterility induced by atomic radiation can be used in developing nonchemical methods for controlling the European corn borer, corn earworm, fall armyworm, and mosquitoes. This work is being financed with $21,000 shifted from research on chemical control of these pests.

To obtain funds for the Pacific island test of the new insect-eradication method, we have transferred $50,000 from funds that had been allocated to work in Hawaii on fruitfly biology and insecticides.

We have considerably strengthened cooperative research on transmissible gastroenteritis in young pigs. You will recall that last year the committee requested us to give consideration to this important swine disease, and the appropriation provided $30,000. We allotted $50,000 to this work in three States—$25,000 in Iowa, $11,500 in California, and $13,500 in Indiana. The additional funds were obtained by closing out work on vesicular exanthema in California and reducing other research on baby pigs in Indiana.

Cooperation by industry in using our sweet-corn breeding lines to develop commercial hybrids has made it possible to shift $9,000 from variety development to basic research on corn diseases and protein physiology.

With $7,000 taken from research on insecticides for control of tobacco insects, we are intensifying our efforts to determine the usefulness of an insect disease that has shown much promise against hornworms and budworms, the most serious pests of tobacco. The insecticide residue problem on tobacco can be practically eliminated if this pathogen proves effective against these insect pests.

We've shifted $10,000 from research on fertilizer-pesticide mixtures to work on a urea fertilizer that will be more stable for use in top-dressing grasslands.

Completion of two economics projects—on cost of range improvement in California brushlands, and on the economics of cotton mechanization in North Carolina—has released $25,000, which is being used for research to determine the effects of alternative farm programs on current and prospective production and income.

We have considered it important to develop a standby method of removing radioactive strontium from milk, in the event this ever becomes necessary. We have shifted $80,000 from other dairy products research to this project, which is cooperative with the Atomic Energy Commission and the Department of Health, Education, and Welfare. Each of these agencies is also contributing $80,000.

Introduction of synthetic emulsion paints for outside use threatens the major use for linseed oil. In cooperation with the National Flaxseed Processors Association, we have initiated an intensive research effort to develop a linseed oil emulsion paint suitable for outside use. This shift involves $188,000, made available by the completion of certain phases of the work on industrial intermediates from linseed, soybean, and safflower oils.

I have a total of 202 of these items, but rather than to continue discussing each of them at this time, I am appending the list to my statement as attachment No. 2. Taken all together, these program shifts represent $5,405,000 worth of new or strengthened research that we have undertaken during the year without requesting addi-

tional funds from the Congress. Although these adjustments will delay progress in areas where reductions have been made, we believe they will permit us to move more rapidly on other problems of greater concern at this time.

I would like to submit, for the record, a chart showing all Department line projects on file in our central project office and the changes made during calendar year 1959, as compared with 1958 and 1957.

Mr. WHITTEN. We shall be glad to have that included in the record at this point.

(The chart referred to follows:)

*Changes in line projects on file in the central project office—Calendar year 1959 with comparisons for calendar years 1957 and 1958*

| Agency | Active projects beginning of year | Additions | | | Subtractions | | | | Active projects end of year |
|---|---|---|---|---|---|---|---|---|---|
| | | New projects [1] | Revised projects [2] | Total | Discontinuances | | Superseded projects [3] | Total | |
| | | | | | Completed projects | All other projects | | | |
| CALENDAR YEAR 1959 | | | | | | | | | |
| Agricultural Research Service | 1,926 | 186 | 127 | 313 | 175 | 40 | 170 | 385 | [4] 1,854 |
| Agricultural Marketing Service | 529 | 86 | 16 | 102 | 91 | 13 | 14 | 118 | 513 |
| Farmer Cooperative Service | 81 | 14 | 5 | 19 | 9 | 2 | 5 | 16 | [5] 84 |
| Forest Service | 295 | 13 | 27 | 40 | 3 | 3 | 50 | 56 | [6] 279 |
| Information | 4 | 2 | | 2 | 2 | | | 2 | 4 |
| Total | 2,835 | 301 | 175 | 476 | 280 | 58 | 239 | 577 | 2,734 |
| Calendar year: | | | | | | | | | |
| 1958 [7] | 3,060 | 321 | 328 | 649 | 308 | 74 | 492 | 874 | 2,835 |
| 1957 [7] | 2,891 | 560 | 437 | 997 | 240 | 104 | 484 | 828 | 3,060 |

[1] Projects concerned with conditions, problems or approaches not included in previous work of the originating agency.
[2] A restatement and bringing up to date of previously documented work.
[3] Projects whose work has been included in revised project statements.
[4] Does not include 28 projects conducted in foreign countries with foreign currencies made available by Public Law 480.
[5] 29 of these projects are financed with AMS funds.
[6] Does not include 2 projects conducted in foreign countries with foreign currencies made available by Public Law 480.
[7] Adjusted for comparability with calendar year 1959.

ABSORPTION OF INCREASED OPERATING COSTS

Dr. SHAW. In addition to these program shifts, it is necessary to absorb substantial increases in operating costs which occurred in calendar year 1959. Major items in this category, totaling $1,674,810, include $255,000 for wage-board increases, $549,810 to cover pay act costs, $370,000 for equipment and supplies, $150,000 for postage and per diem travel costs, and $350,000 for within-grade salary advancement of meat inspectors.

SPECIAL FUND

Our program was strengthened significantly by the $1 million made available, on the committee's recommendation, as a special fund for use this year, to provide additional labor and subprofessional assistance at field stations. In many cases, this money has permitted us to continue projects that otherwise would have been curtailed or suspended. And in every case, it has enabled us to have a more effective field and laboratory program.

For example, in research at St. Paul, Minn., $1,000 from the special fund provided labor to harvest, thresh, and clean a greater amount of seed from irradiated plants, in order to increase the chances of obtaining valuable genetic mutations.

At the Salinity Laboratory in California, $14,800 made it possible to increase the number of field studies under different soil and rainfall conditions and to take and process more soil and plant samples for research analysis.

At Logan, Utah, $6,000 provided engineering student assistance in analyzing the great amount of field-plot data involved in studies of the influence of fertilization and irrigation on growth and yields of potatoes, alfalfa, and other crops.

At Ames, Iowa, $3,000 hired extra labor for checking seed germination of plant introductions being held in storage to maintain viability, and permitted the plant pathologist to include a larger number of introductions in his plant disease studies.

At Whittier, Calif., $3,965 helped advance research on the recently discovered virus disease of the citrus red mite. In this case, scientists were relieved of routine work involved in gathering and processing lemons for use in rearing mites, mass production of virus, inoculation of mite cultures, and collection of diseased mites.

At Holly Springs, Miss., $3,000 helped to speed up the new soil and water conservation program, by providing laborers to do the weeding, sodding, and instrument installations required in setting up the field runoff plots.

At Fort Collins, Colo., $2,500 paid for labor required in field plot work on sugar-beet breeding and disease control, and for subprofessional assistance in running analyses on yield of roots and percentage of sucrose.

At Dubois, Idaho, $11,000 provided subprofessional assistance needed to undertake and carry out additional research on breeding, management, and physiology of reproduction of range sheep. In this case, the help is used for collecting and analyzing data on the effects of four different feeding and management procedures on the growth, development, and sexual maturity of rams, as well as on their wool production and sale value.

At Corvallis, Oreg., $4,000 was used for labor to harvest grass and legume seed, and for subprofessional help in counting, identifying, and processing seed samples. This extra help has freed the small professional staff to work on the technical phases of the seed-harvesting improvement project at this station.

At Tifton, Ga., $2,800 provided labor to prepare experimental tobacco field plots, and to harvest, cure, sort, and weigh the tobacco, plus laboratory assistants to make quality determinations of the cured leaves. Without the extra money, no help would have been available this year for these analytical studies on tobacco quality.

In attachment No. 3, I am furnishing a breakdown, by field locations, of the allocations made from the special fund, and expenditures made through December 31.

Mr. WHITTEN. Dr. Shaw, you make a mighty good case. I am surprised that it is left out of the budget. It makes me wonder if that does not increase its chances of showing up in the budget next time.

Did you make that showing to the Secretary and to the Bureau of the Budget?

Dr. SHAW. I certainly stated that the money has been most useful and very much needed.

Mr. PETERSON. I seconded Dr. Shaw's position on that, Mr. Chairman.

Mr. WHITTEN. Perhaps that is one of the programs the committee would put back into operation.

### PROMOTION POLICY FOR SCIENTISTS

Dr. SHAW. Another administrative development—also aimed at more productive research—is our new promotion policy for ARS scientists. We now have an established policy that scientists can climb to the top of the career ladder as scientists, without necessarily taking on increased administrative responsibilities in the higher grades. In line with this policy, a competent scientist can expect to go to GS–13 during his career. The top 15 percent can anticipate promotion to GS–14 and above, the top 5 percent to GS–15 and above, and the top 1 percent to GS–16 and above. We cannot make our policy fully effective at the GS–16 level and above at this time, because we do not have sufficient Public Law 313 authorities for research and development positions. At the present time, we have only 10 of these positions in ARS.

We are extremely proud of our research staff. We believe we have scientific competence unexcelled by any other research organization, and we want to keep it that way. To do this, we must make careers in ARS attractive enough to hold the scientists we have and to attract others of equally outstanding ability.

### HONOR AWARDS

As evidence of the high reputations enjoyed by our scientists, I am appending, as attachment No. 4, a list of awards they have received during the past year from regional, national, and international institutions. These awards, more than 50 in all, do not include honors given by the Department or the many honors implicit in elections as officers or fellows of scientific societies, advisory councils, and similar

groups of national and international importance. With your permission, I offer this attachment for the record.

(The information follows:)

ATTACHMENT No. 4

HONORS AND AWARDS RECEIVED BY SCIENTISTS IN THE AGRICULTURAL RESEARCH SERVICE DURING 1959

| | |
|---|---|
| Samuel Asen | Vaughan Award, presented by American Society for Horticultural Science. |
| Alfred H. Baumhover | Recognized by Progressive Farmer Magazine as one of 4 "men of the year in service to southern agriculture." |
| Wayne Binns | Selected as veterinarian of the year by Utah State Veterinary Medical Association. |
| T. E. Bond | Metal Building Manufacturers Association Award. |
| C. A. Bower | Soil Science Award, presented by American Society of Agronomy. |
| R. C. Bushland | Medal of Merit, presented by the National Hide Association (shared with Gaines W. Eddy); Texas and Southwestern Cattle Raisers Association Distinguished Service Award; recognized by Progressive Farmer Magazine as one of 4 "men of the year in service to southern agriculture." |
| A. H. Carter | Charles G. Woodbury Award in Raw Products Research, presented by American Society for Horticultural Science (shared with D. W. Ingalsbe, A. M. Neubert, of ARS, and E. L. Proebsting, of Washington State University). |
| Joseph Coleman | Bond Award, presented by American Oil Chemists Society (shared with Daniel Swern). |
| Gaines W. Eddy | Medal of Merit, presented by the National Hide Association (shared with R. C. Bushland). |
| Alvin Egbert | Award for Ph.D. thesis, presented by American Farm Economic Association. |
| Samuel L. Emsweller | Lyttel Lily Cup, presented by the Royal Horticultural Society of London, England. |
| C. H. Fisher | Herty Medal, presented by southern section of American Chemical Society. |
| Paul R. Fitzgerald | Teaching fellowship, Utah State University. |
| Wilford R. Gardner | National Science Foundation senior postdoctoral fellowship. |
| Leo A. Goldblatt | Award and $1,000 (shared with Robert S. McKinney), presented by Glycerine Products Association. |
| Jack Goldstein | Fellowship, Rockefeller Institute. |
| W. A. Hagan | Recognition for distinguished service, by the Association of Deans of American Colleges of Veterinary Medicine; academic award, presented by University of Madrid. |
| Jack Harlan | Guggenheim Award. |
| Wells A. Hutchins | Recognized by the 4th Annual New Mexico Water Conference for his long and distinguished service and his contribution to the knowledge of and developments in western water law. |
| D. W. Ingalsbe | Charles G. Woodbury Award in raw products Research, presented by American Society for Horticultural Science (shared with A. H. Carter, A. M. Neubert, of ARS, and E. L. Proebsting, of Washington State University). |

| | |
|---|---|
| A. Earl Johnson | Teaching fellowship, Utah State University. |
| E. F. Knipling | Iowa Alumni Merit Award (Iowa State University); recognized by Progressive Farmer magazine as one of 4 "men of the year in service to southern agriculture." |
| Arthur W. Lindquist | Recognized by Progressive Farmer magazine as one of 4 "men of the year in service to southern agriculture." |
| J. P. Madden | Ralston Purina Co. scholarship. |
| Stanley J. Marsden | Tilghman Trophy, presented by Maryland Turkey Producers. |
| Allen McIntosh | Honorary doctor of science degree, University of Miami. |
| Robert S. McKinney | Award and $1,000 (shared with Leo A. Goldblatt), presented by Glycerine Products Association. |
| James E. McMurtrey, Jr | Annual research award of Cigar Manufacturers Association. |
| A. M. Neubert | Charles G. Woodbury Award in raw products research, presented by American Society for Horticultural Science (shared with A. H. Carter, D. W. Ingalsbe, of ARS, and E. L. Proebsting, of Washington State University). |
| Marion W. Parker | American Management Association scholarship award. |
| A. N. Plant | Outstanding agronomy senior award (Colorado State University, 1959). |
| B. A. Porter | Honorary degree of doctor of science, presented by the University of Massachusetts. |
| Sigmund Schwimmer | National Science Foundation senior postdoctorate fellowship. |
| Byron T. Shaw | Gold medal award, presented by the Philadelphia Society for Promoting Agriculture. |
| Cornelius B. Shear | Gourley Medal and cash prize, presented by American Fruit Grower magazine. |
| Herbert D. Smith | Honored posthumously at Mexican "Dia del Insecto" program of Mexican Entomological Society, for successful establishment of parasites of the citrus black fly in Mexico. |
| Oliver F. Smith | Fulbright scholarship and Guggenheim Award. |
| Vance G. Sprague | Crop Science Society Achievement Award. |
| C. D. Stein | Award of merit, presented by the District of Columbia Veterinary Medical Association. |
| Hazel K. Stiebeling | President's Award for Distinguished Federal Civilian Service. |
| Neil W. Stuart | Vaughan Award, presented by American Society for Horticultural Science. |
| Daniel Swern | Bond Award, presented by American Oil Chemists Society (shared with Joseph Coleman). |
| John F. Thompson | National Science Foundation senior postdoctoral fellowship. |
| S. N. Timasheff | National Science Foundation scholarship. |
| Arnold J. Ullstrup | Merit award, presented by the Indiana Crop Improvement Association. |
| Orville A. Vogel | Plaque, presented by Whitman County (Washington) Wheat Producers. |
| Thomas Whitaker | Guggenheim Award. |
| John H. Zeller | Selected as outstanding alumnus of the Animal Husbandry Department, the Pennsylvania State University for 1959. |

| | |
|---|---|
| C. A. Zittle | Borden Award (gold medal and $1,000). |
| Eastern Utilization Laboratory research team. | First industrial achievement award, presented by the Institute of Food Technologists. |
| Western Utilization Laboratory research team. | Award of merit, presented by National Association of Frozen Food Processors; plaque, presented by National Frozen Food Distributors Association. |

NEED FOR IMPROVED LIBRARY SERVICES

Next to scientists themselves, perhaps the most important prerequisite of successful and productive research is availability of scientific literature. Many people think of scientific publications as products of research. But they are also one of the scientists' most important tools. I would therefore like to mention briefly a proposed budget item that is outside the ARS budget but vitally important to our work. I am referring to the increase of $56,880 contained in the proposed budget of the Department of Agriculture Library.

During the past 10 years, the library has been increasingly hard pressed to give adequate service to our scientific personnel. As the Department's research program has expanded, the number of scientists requiring library service has increased also. At the same time, the world output of scientific publications has doubled. This means a vastly increased job of abstracting, indexing, and translating in order to make publications available for use by our scientists. More than 200,000 separate publications are received in the library's exchange program each year, and many of these have had to be boxed and stored for lack of staff to process them.

Prices of basic scientific reference books have increased 100 to 600 percent during the past 10 years, and the library has been unable to acquire many revised editions and new compilations badly needed by Department scientists.

I want to state that we continually receive wonderful cooperation from the library staff. They work long and hard to provide our scientists with as much help as they possibly can. The fact remains, however, that the work of ARS would benefit considerably from the additional services that could be provided by the library with the increased funds requested.

That completes my statement, Mr. Chairman.

## Salaries and Expenses

*Program and financing*

| | 1959 actual | 1960 estimate | 1961 estimate |
|---|---|---|---|
| Program by activities: | | | |
| 1. Research: | | | |
| (a) Farm research | $45,123,417 | $47,109,990 | $49,677,700 |
| (b) Utilization research and development | 16,413,495 | 16,121,000 | 18,442,600 |
| (c) Home economics research | 2,013,154 | 2,155,800 | 2,189,200 |
| (d) Administration of payments to States, and research in Alaska, Puerto Rico, and Virgin Islands | 1,081,824 | 1,099,300 | 1,102,200 |
| Total, research | 64,631,890 | 66,486,090 | 71,411,700 |
| 2. Plant and animal disease and pest control: | | | |
| (a) Plant disease and pest control | 21,586,514 | 24,199,700 | 24,916,800 |
| (b) Animal disease and pest control | 29,188,711 | 25,600,900 | 23,818,800 |
| Total, plant and animal disease and pest control | 50,775,225 | 49,800,600 | 48,735,600 |
| 3. Meat inspection | 20,657,577 | 21,324,900 | 21,562,700 |
| Total program costs [1] | 136,064,692 | 137,611,590 | 141,710,000 |
| 4. Relation of costs to obligations: | | | |
| Costs financed from obligations of other years, net (−) | −2,783,857 | | −2,390,000 |
| Obligations incurred for costs of other years, net | | 2,235,500 | |
| Total program (obligations) | 133,280,835 | 139,847,090 | 139,320,000 |
| Financing: | | | |
| Comparative transfers from (−) or to other accounts | −48,225 | 900 | |
| 1959 appropriation available in 1958 | 527,557 | | |
| Unobligated balance no longer available | 3,220,223 | | |
| New obligational authority | 136,980,390 | 139,847,990 | 139,320,000 |
| New obligational authority: | | | |
| Appropriation | 128,752,890 | 138,847,990 | 139,320,000 |
| Transferred from "Conservation reserve program," Commodity Stabilization Service (73 Stat. 34) | 7,881,500 | | |
| Appropriation (adjusted) | 136,634,390 | 138,847,990 | 139,320,000 |
| Reappropriation | 346,000 | 1,000,000 | |

[1] Includes capital outlay as follows: June 30, 1959, $8,068,509; 1960, $5,200,000; 1961, $7,600,000.

*Object classification*

| | 1959 actual | 1960 estimate | 1961 estimate |
|---|---|---|---|
| AGRICULTURAL RESEARCH SERVICE | | | |
| Total number of permanent positions | 16,321 | 16,459 | 16,486 |
| Full-time equivalent of all other positions | 1,310 | 1,127 | 1,015 |
| Average number of all employees | 15,627 | 15,778 | 15,833 |
| Number of employees at end of year | 17,501 | 17,819 | 17,937 |
| Average GS grade and salary | 7.5 $6,004 | 7.6 $6,045 | 7.6 $6,083 |
| Average salary of ungraded positions | 3,907 | 4,097 | 4,190 |
| 01 Personal services: | | | |
| Permanent positions | $82,486,145 | $85,727,500 | $87,451,600 |
| Fees paid for services | 1,902,205 | | |
| Positions other than permanent | 3,344,844 | 3,974,700 | 3,629,600 |
| Other personal services | 1,347,237 | 1,731,500 | 1,382,400 |
| Total personal services | 89,080,431 | 91,433,700 | 92,463,600 |
| 02 Travel | 4,104,188 | 4,243,000 | 4,247,800 |
| 03 Transportation of things | 477,605 | 491,500 | 679,900 |
| 04 Communication services | 1,284,579 | 1,280,000 | 1,324,900 |
| 05 Rents and utility services | 984,284 | 1,143,000 | 1,192,700 |
| 06 Printing and reproduction | 697,078 | 732,500 | 745,200 |
| 07 Other contractual services | 9,340,803 | 11,889,000 | 12,191,600 |
| Services performed by other agencies | 4,641,291 | 4,479,500 | 4,583,300 |
| 08 Supplies and materials | 9,107,009 | 8,835,690 | 8,940,600 |
| 09 Equipment | 4,201,981 | 4,162,500 | 5,022,100 |
| 10 Lands and structures | 703,899 | 522,000 | 278,000 |
| 11 Grants, subsidies, and contributions | 5,056,838 | 5,351,500 | 5,471,000 |
| 13 Refunds, awards, and indemnities | 23,763 | 21,500 | 21,500 |
| Awards for employee suggestions | 37,640 | 43,000 | 43,000 |
| Anaplasmosis indemnities | 500 | 1,000 | 1,000 |
| Brucellosis indemnities | 2,410,509 | 1,700,000 | 1,420,000 |
| Scrapie indemnities | 293,039 | 150,000 | 150,000 |
| Tuberculosis indemnities | 478,285 | 440,000 | 440,000 |
| Payments to Mexican-United States Commission for the Prevention of Foot-and-Mouth Disease | | 20,000 | 20,000 |
| Federal tort claims | 532 | | |
| 15 Taxes and assessments | 199,376 | 209,800 | 185,900 |
| Subtotal | 133,123,030 | 137,149,190 | 139,422,100 |
| Deduct quarters and subsistence charges | 101,855 | 102,100 | 102,100 |
| Total, Agricultural Research Service | 133,021,175 | 137,047,090 | 139,320,000 |
| ALLOCATION ACCOUNTS | | | |
| Total number of permanent positions | 2 | | |
| Average number of all employees | 2 | | |
| Number of employees at end of year | 2 | | |
| Average GS grade and salary | 8.1 $6,598 | | |
| 01 Personal services: | | | |
| Permanent positions | $8,175 | | |
| Other personal services | 1,819 | | |
| Total personal services | 9,994 | | |
| 02 Travel | 181 | $2,000 | |
| 05 Rents and utility services | 693 | | |
| 06 Printing and reproduction | | 5,000 | |
| 07 Other contractual services | 25,675 | 243,000 | |
| 08 Supplies and materials | 301 | | |
| 10 Lands and structures | 222,283 | 2,550,000 | |
| 11 Grants, subsidies, and contributions | 533 | | |
| Total, allocation accounts | 259,660 | 2,800,000 | |
| Total obligations | 133,280,835 | 139,847,090 | $139,320,000 |
| Obligations are distributed as follows: | | | |
| Agricultural Research Service | 133,021,175 | 137,047,090 | 139,320,000 |
| General Services Administration | 233,322 | 2,800,000 | |
| Bureau of Public Roads, Department of Commerce | 26,338 | | |

Mr. WHITTEN. We might put in the record at this point, pages 5 through 9 of the justifications.

(The pages referred to follow:)

*Salaries and expenses*

| | Research | Plant and animal disease and pest control | Meat inspection | Total |
|---|---|---|---|---|
| Appropriation act, 1960 | $67,722,490 | $49,800,600 | $21,324,900 | [1] $138,847,990 |
| Activities transferred in 1961 estimates: | | | | |
| To "Salaries and expenses, Agricultural Marketing Service," for marketing research | −50,000 | | | −50,000 |
| From "Salaries and expenses, library," for field library services | 49,100 | | | 49,100 |
| Base for 1961 | 67,721,590 | 49,800,600 | 21,324,900 | [1] 138,847,090 |
| Budget estimates, 1961 | 68,981,700 | 48,775,600 | 21,562,700 | 139,320,000 |
| Increase or decrease | +1,260,110 | −1,025,000 | +237,800 | +472,910 |

[1] Excludes reappropriation of $1,000,000 of 1959 unobligated balances for labor at research field stations.

*Summary of increases and decreases, 1961*

RESEARCH

| | | |
|---|---|---|
| A net increase of $1,260,110 consisting of— | | |
| Decrease due to elimination of nonrecurring amounts provided in 1960 for construction of laboratories and improvement of facilities | | −$3,150,000 |
| Decrease due to providing in the direct appropriation to General Services Administration for certain leasing costs now paid from this appropriation | | −8,990 |
| Increase for staffing and operating National Animal Disease Laboratory, Ames, Iowa, in 1961 (portion applicable to research program) | | +805,600 |
| Increase for intensive research to develop chemicals and biological measures for use in agriculture which will reduce or avoid hazards from pesticide residues | | +1,502,800 |
| Increase for economic research to determine alternative systems of farming to enable feed-grain and livestock farmers to adjust more readily to market demands | | +100,700 |
| Increase of $1,512,800 for utilization research as follows: | | |
| Research to increase the industrial use of cereals grains (in addition, it is proposed to redirect work in the present farm research program to the extent of $700,000 to place greater emphasis on this utilization research) | +$506,600 | |
| Research on cotton to develop new and improved textiles and processes ($503,000) and on wool to develop new types of yarns from coarse wool ($100,700) | +603,700 | |
| Research on castor oil to develop materials for use in solid fuels and other products and to improve the utilization of castor meal | +100,700 | |
| Research to expand or find new uses for animal fats | +301,800 | |
| | | +1,512,800 |
| Increase for employee health benefit costs pursuant to Public Law 86-382 | | +497,200 |
| Net increase for research | | +1,260,110 |

*Summary of increases and decreases, 1961*—Continued

PLANT AND ANIMAL DISEASE AND PEST CONTROL

| | |
|---|---|
| A net decrease of $1,025,000 consisting of— | |
| Increase for regulatory activities to carry out on a full-year basis the Department's responsibilities under the amendment to the Federal Insecticide, Fungicide, and Rodenticide Act (Public Law 86–139), approved Aug. 7, 1959 | +$100,700 |
| Increase for plant quarantine protection services | +504,600 |
| Increase for staffing and operating National Animal Disease Laboratory, Ames, Iowa, in 1961 (portion applicable to control programs) | +201,400 |
| Decrease in animal disease control and eradication programs ($1,250,000 for brucellosis eradication and $850,000 for screwworm eradication) | −2,100,000 |
| Decrease due to providing in the direct appropriation to General Services Administration for certain leasing costs now paid from this appropriation | −38,300 |
| Increase for employee health benefit costs pursuant to Public Law 86–382 | +306,600 |
| Net decrease, plant and animal disease and pest control | −1,025,000 |

MEAT INSPECTION

| | |
|---|---|
| Increase for employee health benefit costs pursuant to Public Law 86–382 | +237,800 |

*Project statement*

| Project | 1959 | 1960 (estimated) | Increase (+) or decrease (−) | | 1961 (estimated) |
|---|---|---|---|---|---|
| | | | Health benefit costs (Public Law 86–382) | Other | |
| 1. Research: | | | | | |
| (a) Farm research: | | | | | |
| (1) Animal husbandry | $5,307,620 | $5,337,000 | +$44,600 | +$38,100 | $5,419,700 |
| (2) Animal disease and parasite | 7,051,791 | 6,862,900 | +50,000 | +875,600 | 7,788,500 |
| (3) Crops | 13,810,951 | 14,707,890 | +113,610 | −1,151,600 | 13,669,900 |
| (4) Entomology | 5,676,960 | 7,798,200 | +43,500 | −1,235,800 | 6,605,900 |
| (5) Soil and water conservation | 7,241,546 | 8,192,000 | +62,190 | −130,290 | 8,123,900 |
| (6) Farm economics | 2,910,856 | 2,941,900 | +21,300 | +73,800 | 3,037,000 |
| (7) Agricultural engineering | 2,277,847 | 2,529,300 | +18,200 | +55,300 | 2,602,800 |
| Total, farm research | 44,277,571 | 48,369,190 | +353,400 | −1,474,890 | 47,247,700 |
| (b) Utilization research and development: | | | | | |
| (1) Cereal and forage crops | 3,047,307 | 3,092,600 | +21,000 | +1,206,600 | 4,320,200 |
| (2) Cotton, wool, and other fibers | 3,314,262 | 3,289,600 | +24,000 | +603,700 | 3,917,300 |
| (3) Fruits and vegetables | 2,558,943 | 2,628,800 | +17,300 | ---------- | 2,646,100 |
| (4) Oilseeds | 1,903,363 | 1,957,300 | +14,200 | +100,700 | 2,072,200 |
| (5) New and special plants | 1,660,781 | 1,614,700 | +11,300 | ---------- | 1,626,000 |
| (6) Poultry, dairy, and animal products | 3,302,219 | 3,533,700 | +25,300 | +301,800 | 3,860,800 |
| Total, utilization research and development | 15,786,875 | 16,116,700 | +113,100 | +2,212,800 | 18,442,600 |
| (c) Home economics research: | | | | | |
| (1) Human nutrition | 1,087,459 | 1,069,400 | +8,500 | +25,000 | 1,102,900 |
| (2) Household economics | 623,156 | 646,800 | +5,300 | ---------- | 652,100 |
| (3) Clothing and housing | 433,173 | 431,000 | +3,200 | ---------- | 434,200 |
| Total, home economics research | 2,143,788 | 2,147,200 | +17,000 | +25,000 | 2,189,200 |

*Project statement*—Continued

| Project | 1959 | 1960 (estimated) | Increase (+) or decrease (−) | | 1961 (estimated) |
|---|---|---|---|---|---|
| | | | Health benefit costs (Public Law 86-382) | Other | |
| 1. Research—Continued | | | | | |
| (d) Administration of payments to States, and research in Alaska, Puerto Rico, and Virgin Islands: | | | | | |
| (1) State experiment stations | $314,223 | $342,500 | +$6,800 | ---------- | $349,300 |
| (2) Research in Alaska, Puerto Rico, and Virgin Islands | 762,084 | 746,000 | +6,900 | ---------- | 752,900 |
| Total, administration of payments to States, and research in Alaska, Puerto Rico, and Virgin Islands | 1,076,307 | 1,088,500 | +13,700 | ---------- | 1,102,200 |
| Total, research | 63,284,541 | 67,721,590 | +497,200 | +$762,910 | 68,981,700 |
| 2. Plant and animal disease and pest control: | | | | | |
| (a) Plant disease and pest control: | | | | | |
| (1) Plant pest control | 15,730,396 | 18,760,200 | +85,200 | +84,500 | 18,929,900 |
| (2) Plant quarantine | 5,425,848 | 5,439,500 | +47,600 | +499,800 | 5,986,900 |
| Total, plant disease and pest control | 21,156,244 | 24,199,700 | +132,800 | +584,300 | 24,916,800 |
| (b) Animal disease and pest control: | | | | | |
| (1) Animal disease control and eradication | 28,245,023 | 23,972,000 | +159,600 | −2,117,300 | 22,014,300 |
| (2) Animal inspection and quarantine | 1,779,264 | 1,628,900 | +14,200 | +201,400 | 1,844,500 |
| Total, animal disease and pest control | 30,024,287 | 25,600,900 | +173,800 | −1,915,900 | 23,858,800 |
| Total, plant and animal disease and pest control | 51,180,531 | 49,800,600 | +306,600 | −1,331,600 | 48,775,600 |
| 3. Meat inspection | 20,363,752 | 21,324,900 | +237,800 | ---------- | 21,562,700 |
| 4. Special fund | ---------- | 1,000,000 | ---------- | −1,000,000 | ---------- |
| Total, obligations [1] | 134,828,824 | 139,847,090 | +1,041,600 | −1,568,690 | 139,320,000 |
| Unobligated balance | 3,220,223 | ---------- | ---------- | ---------- | ---------- |
| Deduct reappropriations for completion of soil and water laboratories in 1959; and for special fund in 1960 | −346,000 | −1,000,000 | ---------- | +1,000,000 | ---------- |
| Total employee health benefit costs (Public Law 86-382) | [----------] | [----------] | [+1,041,600] | [+36,000] | [1,077,600] |
| Total available (excluding reappropriations) or estimate | 137,703,047 | 138,847,090 | +1,041,600 | −568,690 | 139,320,000 |
| Transfer in 1961 estimates: | | | | | |
| From "Salaries and expenses, Library" | −48,225 | −49,100 | | | |
| To "Salaries and expenses, Agricultural Marketing Service" | ---------- | +50,000 | | | |
| Transfer in 1960 estimates from "Diseases of animals and poultry" | −1,020,432 | ---------- | | | |
| Transferred from "Conservation reserve program, Commodity Stabilization Service" | −7,881,500 | ---------- | | | |
| Total appropriation | 128,752,890 | 138,847,990 | | | |

[1] Obligations for 1959 include $527,557 obligated in 1958 under the advance procurement authorization (Public Law 85-386). Comparable applied costs are $136,064,692 for 1959, $137,611,590 for 1960, and $141,710,000 for 1961. The differences are due primarily to variations in construction contracts awarded compared with work completed.

USE OF SPECIAL FUND FOR LABOR

Mr. WHITTEN. Dr. Shaw, I mentioned this $1 million fund and I would like to ask you whether these funds were used for temporary labor or new people, or was any of it used to pay people already in the employment of the Department on a full time basis?

Dr. SHAW. You will recall, Mr. Chairman, that the Appropriation Act provides for the employment of additional labor under contracts and cooperative agreements, or for the direct employment of temporary labor or subprofessional assistants.

The work has been performed either by laborers or subprofessional assistants. None of the money has been used for professional staff. It has been used to add new hands to the staff presently employed.

Mr. WHITTEN. And it was money to do it on a job basis?

I mean, your contracts or your arrangements would do specific things, and it was not for continuous employment?

Dr. SHAW. Yes. The provision in the act was only for 1 year, and we made the stipulation that the only way that labor could be hired on a permanent basis was if the employing unit could continue his employment if this fund were not available the following year.

Mr. PETERSON. Mr. Chairman, I might observe that that usage is entirely consistent with what I have said many times to this committee and to others—that where we can provide the subprofessional and nonprofessional supporting help to our professional scientists we get more production out of our professional scientists and it is just good business.

Mr. ANDERSEN. It is just good mathematics, Mr. Peterson.

Mr. WHITTEN. I can appreciate that, and I think the committee did appreciate it in providing this fund.

I can also understand the reason that the condition arose which necessitated something like this, such as ingrade promotions and constantly inflated dollars. If you are in trouble at any location, you naturally hold onto your scientific personnel to the last, and you end up with scientists doing subprofessional work. It is a natural thing, particularly in this day and time.

I hope and trust that the committee will give some attention to seeing what we can do to restore at least this leeway to meet your problems in the way they are needed to be met.

Dr. SHAW. In attachment No. 3 that I appended, it shows that this fund helped out in 142 different locations.

Mr. WHITTEN. Do they make their request directly to you here in Washington for the allocation of funds, or how is that handled?

Dr. SHAW. After the fund was made available last year, I asked all of our research units in the Agricultural Research Service to submit items which they felt needed to be done. I went over those items personally and selected the ones that were allocated.

SCRAPIE DISEASE OF SHEEP

Mr. WHITTEN. You did not touch on it in your statement, but I have had several people by mail and several Members of Congress complain to me about certain control programs or certain work with regard to a sheep disease called scrapie.

It may be that that will be touched upon by your other people when we reach it, but since this complaint is in the Department's

activities, and seems to be highly controversial among sheep breeders, I wonder if you could give us a statement as to what the situation is?

Dr. SHAW. The questions, I think, Mr. Chairman, are directed at our regulatory program on the one hand, and secondly, the fact that we have not initiated research in this country on it.

The complaints directed at our regulatory program are related to the economic effects on those that have had this disease crop up in their flocks, and the fact that it has been necessary for us to actually eradicate the exposed and diseased animals and hold in quarantine any suspicious cases.

It has been a severe thing for those people that have been affected, but we feel that to permit this disease to develop in all of our sheep throughout the country would be disastrous. We need to take those measures aimed at eradication.

On the research side we have not conducted research in this country particularly because of the long incubation period of the disease. The incubation period runs anywhere from 2 to 3 years before it shows up in the animal. That fact, coupled with the fact that research was presently going on in this disease in England and in Scotland, led us to believe that the wisest course to pursue was to help accelerate the work in England and in Scotland where the disease is prevalent and they have sheep that have already been exposed and already have come down with the disease. It would take us 2 or 3 years to even get the disease in an animal. We felt we would make faster progress by working with them than we would by bringing it into this country. Last fall we brought two experts—one from England and one from Scotland—over here to talk with our research people as well as the sheep industry, and to discuss with them the progress that is being made in the research. These men also concurred with our eradication program and so informed the sheep industry.

I think we removed some of the criticisms that had been directed at us by having these people actually appear and discuss with the people affected what was being done.

Dr. Clarkson might want to add to what I have said.

Dr. CLARKSON. I think that covers it fully. We have reviewed the program each year with our State cooperators and with the scientists in this country and abroad who are associated with it.

I might add that one thing we are trying to work out is a Public Law 480 contract to give further impetus to research in Britain that would produce results which could be incorporated in the solution of the problems of our eradication program.

Mr. WHITTEN. In connection with this, I have before me a prepared statement which the Department sent up to us at our request, and I would like to put this in the record at this point.

(The statement referred to follows:)

SCRAPIE

NATURE OF DISEASE

Scrapie is a chronic infectious disease of sheep and goats. It has been known for over 200 years in several European countries. In Norway, Australia, New Zealand, Canada, and the United States, scrapie infection was introduced by imported sheep. Presence of the disease has interfered seriously with international and national trade in purebred sheep.

The disease has an unusually long incubation period ranging from 18 to 42 months or more. The early symptoms are not readily recognized. Usually,

the animals become abnormally nervous and there is loss of weight in spite of a full appetite. A furious itching develops and the wool becomes dry, lusterless, and dead to the touch. The animal will begin rubbing against fixed objects and will "scrape" off wool. As the disease advances, the affected sheep becomes more nervous and trembles frequently. The head and neck are held in unusual positions and facial muscles may twitch. The animal grows progressively weaker and walks with an incoordinated gait, frequently staggering and stumbling. Progressively the sheep becomes emaciated and weak. Affected sheep rarely recover.

Although this disease has not caused dramatic losses, it has been stated that in areas in countries where the disease is constantly prevalent, 2 to 10 percent of the sheep in about 5 percent of the flocks die each year from this disease. In the United States, flocks are slaughtered as soon as the disease is recognized In small purebred flocks from 2 to 36 percent of the sheep have been observed to have the disease.

PREVIOUS ERADICATION EFFORTS

The first case of scrapie in the United States was reported in 1947. No further cases were reported until fiscal year 1953 when 10 outbreaks were found. The United States Livestock Sanitary Association urged the Secretary of Agriculture to take immediate action to eradicate scrapie. In October 1952, the Secretary declared an emergency and the scrapie eradication program came into being. The program was initiated in cooperation with State authorities. All infected and exposed animals were slaughtered; indemnity payments were made to owners. By December 1954, all known infected flocks had been eliminated and conditions were such that the emergency program was terminated. However, the disease has since appeared in 22 States. Eradication of outbreaks of the disease are now financed from the annual appropriation, "Salaries and expenses, Agricultural Research Service." The Federal-State cooperative program provides for inspection, diagnosis, quarantine as necessary, and slaughter of infected and exposed animals.

Total Federal indemnities to February 1960, including $19,612 under the emergency program have totaled about $1,052,672. In addition about $50,000 has been spent annually for surveillance and quarantine activities.

The unusually long incubation period of 3 years or more creates problems not normally encountered in other animal disease eradication programs. Visibly affected sheep clearly must be slaughtered, but there is no diagnostic test to identify infected animals not showing obvious symptoms. Therefore, the exposed animal which may harbor the agent must likewise be destroyed.

Because of the extensive interstate commerce in sheep, the exposed animal is a serious problem in developing adequate control measures. At present, periodic inspections are being made on approximately 1,400 flocks in practically all States for evidence of infection.

RESEARCH

In fiscal year 1958, a Department research worker was assigned to Compton, England, to work cooperatively with scrapie specialists there. Expansion of research will be undertaken with Public Law 480 funds, under authority of section 104(k), if a sales agreement is amended. About $338,000 would be available for the work over a 5-year period, or approximately $65,000 per annum, if current negotiations are successful.

Although the British have worked on the disease for a number of years, progress has been slow and frustrating. The transmissible agent has some very unusual characteristics. Research indicates that it is caused by an agent that resembles a virus, but which can withstand severe exposure to heat and chemicals that would be expected to inactivate known viruses. All attempts to demonstrate an antibody have failed. There is a wide variation in susceptibility of animals, not only of different breeds but between families of the same breed.

No final determination has been made of the priority of diseases to be studied in the new animal disease laboratory at Ames, Iowa, which will not be ready for occupancy until early in calendar year 1961. The research to be undertaken there will be discussed at the February meeting of the livestock advisory committee. Its recommendations will be carefully considered.

CURRENT SCRAPIE PROGRAM

The Department is working very closely with the sheep industry, State livestock sanitary officials, research workers, and consultants in developing procedures to be followed for successful control and eventual eradication of this serious sheep disease. In 1954 and in 1956 the Department met with State control officials and research workers to determine if any improvements could be made to the eradication program. In each case industry representatives supported continuing the program. Again, in November of 1958 a scrapie study group composed of representatives from interested agencies made a comprehensive study of the scrapie problem and carefully appraised the program in its entirety. This group recommended continuation of the present eradication program. It recommended further that additional research be initiated.

In November 1959, arrangements were made for Dr. W. S. Gordon, director, agriculture research council field station, Compton, England, and Dr. J. T. Stamp, director, Moredun Institute, Edinburgh, Scotland, both of whom are specialists in the field of scrapie research to come to the United States. They discussed their scrapie research work with Federal and State officials and reviewed the cooperative scrapie eradication program. These discussions emphasized the importance of expanding research effort and thereby further strengthening the control and eradication efforts.

*Scrapie indemnities* [1]

| | 1960 as of Feb. 10, 1960 [2] | | 1959 | | 1958 | |
|---|---|---|---|---|---|---|
| | Federal | Non-Federal | Federal | Non-Federal | Federal | Non-Federal |
| California | $11,000 | $8,460 | $76,904 | $76,904 | $9,597 | $9,597 |
| Colorado | 10,000 | | 900 | | 175 | |
| Connecticut | 44 | | 723 | 723 | 9,082 | 9,082 |
| Georgia | | | 5,469 | | | |
| Idaho | 775 | | | | 664 | |
| Illinois | 55,000 | 26,030 | 60,455 | 61,856 | 3,690 | 4,109 |
| Indiana | 947 | 723 | 5,571 | 5,571 | 3,070 | 3,070 |
| Iowa | 4,075 | | 2,361 | | 1,932 | |
| Kansas | 825 | | | | 1,738 | |
| Kentucky | | | 7,981 | | 119 | |
| Louisiana | | | 75 | | 217 | |
| Maine | | | | | 313 | 313 |
| Maryland | | | | | 165 | 110 |
| Massachusetts | | | 1,350 | | 2,396 | |
| Michigan | | | | | 5,845 | 5,845 |
| Minnesota | 486 | 36 | 1,029 | 1,420 | | |
| Mississippi | 3,500 | | | | 2,573 | 64 |
| Missouri | 140 | | | | 758 | 758 |
| Montana | 10,600 | 8,802 | | | | |
| Nebraska | | | 125 | 125 | | |
| Nevada | | | 75 | | 2,066 | 220 |
| New Hampshire | | | 937 | 937 | | |
| New Jersey | | | 125 | 90 | 75 | |
| New York | 2,400 | | 18,002 | | 10,298 | |
| North Carolina | | | 225 | | | |
| North Dakota | 1,125 | | | | | |
| Ohio | 20,750 | 1,358 | 46,907 | | 8,174 | |
| Oklahoma | 325 | | | | | |
| Oregon | 10 | 10 | 2,344 | 2,344 | 3,118 | 3,118 |
| Pennsylvania | 2,121 | 630 | 4,042 | 991 | 334 | |
| Rhode Island | 1,125 | | | | 1,142 | |
| Tennessee | | | 150 | | | |
| Texas | 1,725 | | 570 | | 567 | |
| Utah | 675 | | 15,510 | | 9,500 | |
| Vermont | | | 75 | 75 | 675 | |
| Virginia | | | | | 1,297 | |
| Washington | | | | | 85 | |
| West Virginia | | | | | 5,110 | |
| Wisconsin | 1,275 | | 2,009 | | 20,852 | |
| Wyoming | 59,400 | | 39,125 | 13,183 | 3,898 | |
| Total | 188,323 | 46,049 | 293,039 | 164,219 | 109,525 | 36,286 |

[1] The Federal amounts reflect obligations; the non-Federal amounts reflect payments reported by the States. Under present regulations, Federal indemnity payments can be made whether or not the states participate.

[2] Incomplete.

NOTE.—Federal funds of approximately $50,000 have been expended annually for surveillance and quarantine activities. Non-Federal expenses, estimated to be 50 percent of the Federal have been incurred for such activities

*Scrapie indemnities*—Continued

| | 1957 | | 1956 | | 1955 | |
|---|---|---|---|---|---|---|
| | Federal | Non-Federal | Federal | Non-Federal | Federal | Non-Federal |
| Alabama | $2,797 | | $1,413 | | | |
| Arizona | 3,331 | $3,331 | | | | |
| California | 220,277 | 208,015 | | | $1,900 | $1,900 |
| Colorado | 6,175 | | | | | |
| Connecticut | | | | | 3,300 | |
| Florida | | | 325 | $325 | | |
| Georgia | 100 | 100 | | | 4,700 | 4,700 |
| Idaho | 1,075 | | | | | |
| Illinois | 17,394 | 17,924 | 4,049 | 4,681 | 2,000 | 2,000 |
| Indiana | 7,489 | 7,489 | 22,329 | 22,329 | 2,800 | 2,800 |
| Iowa | | | 3,513 | 3,513 | | |
| Kansas | | | 75 | | | |
| Mississippi | | | 900 | 120 | | |
| Missouri | | | 2,292 | 2,292 | | |
| Nevada | 4,500 | 152 | | | | |
| New York | | | | | 2,444 | |
| North Carolina | 232 | | 4,110 | | | |
| Ohio | 1,868 | | 474 | | 15,631 | |
| Oklahoma | 75 | 75 | | | | |
| Oregon | 46,874 | 46,874 | | | 1,200 | |
| Tennessee | | | 2,765 | | 9,414 | |
| Texas | 150 | | 9,040 | 9,040 | 9,092 | 4,740 |
| Utah | 12,575 | | | | | |
| Virginia | | | 6,671 | | | |
| Wisconsin | | | 2,000 | | | |
| Wyoming | 4,824 | | | | | |
| Total | 329,736 | 283,960 | 59,956 | 42,300 | 52,481 | 16,140 |

AUTHORITY FOR DESTROYING SHEEP IN SCRAPIE ERADICATION PROGRAM

Mr. WHITTEN. In connection with this, I notice that indemnities have been paid.

Does this disease affect human beings, or do you have any knowledge along that line?

Dr. SHAW. I do not know that it is affecting anything but sheep.

Mr. WHITTEN. Then, if it does not hurt the human being, what is your authority for condemnation? Is that by a cooperative agreement between you and the States, or do the States handle the condemnation?

Where is your authority to pay indemnities in case you do kill the sheep?

Dr. SHAW. Our authorities are related to our attempts to eradicate the disease. Whenever we have a serious disease, our authority is broad enough that we can——

Mr. WHITTEN. Could we have that authority spelled out here, because, frankly, it is a little surprising to me. I do not question the soundness in many areas for the good of all with reference to a disease that would cost farmers money which might need to be stopped, but I have not heretofore been aware that there was outright authority to stop it on that basis, except through cooperation on moving across State lines, or things of that sort.

Dr. SHAW. Our authority is limited to interstate movement and, then, rather than to quarantine a whole State, our normal operation is in cooperation with the State to confine it to the most limited area we can.

Mr. WHITTEN. And in that effort you had the cooperation of the State officials?

Dr. SHAW. Yes. It is the State police power that is exercised within the State.

Mr. WHITTEN. So, it is not the Federal Government. If a flock of sheep is within a given State and there is nothing in sight so far as moving into interstate commerce, and if that flock is condemned, and indemnity is paid, that is the State's action so far as the authority is concerned under its police powers?

Dr. SHAW. Yes. We do have authority to join with the State, and with the owner in sharing the cost.

PAYMENT OF INDEMNITIES

Mr. WHITTEN. How do your rates run, and how are they determined, or do you just match the State's indemnity, or do they match yours, or is that negotiated?

Dr. CLARKSON. The indemnity is based upon an official appraisal made jointly by a representative of the State and of the Department, who must agree upon the valuation of the animals that are to be destroyed.

In the case of this disease we are able to salvage a high proportion of the animals for slaughter. So, the salvage from the meat value is subtracted from this appraisal value. Of the remainder, the Federal Government assumes responsibility to pay one-half and the other half is left to the State government. There is a limitation on any Federal share of not more than $75 in the case of any one animal.

Mr. WHITTEN. That reasonably takes care of just a normal, average flock of sheep, but the problem would come when someone had a pedigreed animal for which you may have paid in line with the sheep's value as breeding stock.

Dr. CLARKSON. He could have had a $2,000 animal involved, and in that case the total indemnity that he could receive from the Federal Government would be $75.

The State in some instances has paid a higher sum than that in order to give him some additional recompense in those cases.

Mr. WHITTEN. Not being familiar with the problem, but being familiar with the general problem about the movement of diseased animals across State lines and spreading the problem to producers of sheep and sheep owners, I can understand the need for the Federal Government to move in and keep disease from spreading. But, I believe you answered the question in my mind by saying that your outright authority and the authority which the Federal Government has by itself is only to prevent its movement across State lines?

Dr. SHAW. Yes, sir.

Mr. WHITTEN. Which means in any case where sheep have been condemned it was because of the willingness of the State to use its police power to condemn and you have cooperated and recognized the overall value to the industry?

Dr. SHAW. Yes; our only other recourse would be to put a quarantine at the State border.

Mr. WHITTEN. Which would probably have been more expensive in the long run?

Dr. SHAW. Yes, sir.

Mr. WHITTEN. But it is State police power that has resulted in the condemnation?

Dr. SHAW. Yes, sir.

Mr. ANDERSEN. Mr. Chairman, I would like to make one statement here if you are finished with Dr. Shaw's statement.

Mr. WHITTEN. I was going to ask him a series of questions, but you may proceed.

Mr. ANDERSEN. Doctor, I want to congratulate both you and Mr. Peterson upon your announcing here that you have eliminated or eradicated vesicular exanthema, the Hall scale, and the citrus blackfly. That is quite an accomplishment.

CORN BORER

When are you gentlemen going to tell this subcommittee the same thing relative to the corn borer?

Are there any prospects of that in the future?

Dr. SHAW. We cannot predict at this time, but I would not say that it is impossible.

Mr. ANDERSEN. It is not impossible?

Dr. SHAW. No, sir. We do not have the current information to do it, but there are a lot of techniques developing which may aid us along that line.

CITRUS-BLACKFLY CONTROL

Mr. WHITTEN. Dr. Shaw, in connection with your statement about being rid of the citrus blackfly, I believe our subcommittee a few years ago went into this matter and did some inspection.

At that time it was said that the citrus blackfly was just across the border in Mexico, and you were working in connection with the Mexican Government to keep down reinfestation.

How safe do you feel about that?

Dr. SHAW. It is still in Mexico and they are using methods to control it, both with predators—that is, the insects which destroy it—and also chemical controls.

I do not know whether we have people actually working there with them.

Dr. CLARKSON. Yes. The citrus blackfly program is handled in two zones. There is a zone just south of the border that is termed an eradication or suppression zone. In that area insecticides are used with inspection to keep the fly from getting up in to the citrus areas of the Rio Grande Valley on either side of the border.

Farther down in Mexico, reliance is placed upon biological methods to keep the fly population low.

The predators, or flies which have been imported from Asiatic countries where the citrus blackfly came from in the first place, are released in any area where the fly population begins to increase.

Mr. WHITTEN. Which would help somewhat?

Dr. CLARKSON. Yes, sir; it helps a great deal. It prevents the buildup of tremendous populations which then move on up to the north.

HUMANE SLAUGHTER

Mr. WHITTEN. Last year we provided $100,000 for the determination of what methods constituted humane slaughter. I believe I discussed that with you, Dr. Clarkson, in an effort to clarify it.

The attitude of this committee certainly was that it is open to individual determination as to which is humane and which is not. There

are quite a number of methods thought by some to be proper or the best, and some by others. Have you made a determination of which ones meet the requirements of the Department in this field, and have you done anything about making that information available to the smaller slaughtering plants so as to prevent exceptional expenditures in trying to comply with that law?

Dr. CLARKSON. Yes, sir. As you recall, the Department's apprehension in moving into this field was that we did not have specific knowledge from research as to just what constitutes humaneness, how pain may be measured, and from that, which methods would be the most appropriate.

However, following the mandate of the law, several methods have been specified as acceptable under the law.

You recall that the law itself specified that the Jewish kosher method was humane, and that, of course, is acceptable. The Department has specified the use of carbon-dioxide gas for hogs and small animals, the use of electricity, and the use of mechanical knocking hammers—those that are activated by gunpowder or by compressed air, and which can be used by an operator somewhat less skilled than the operators who use the knocking hammer which is not now acceptable under the law.

Each method is spelled out in a regulation, and was made available to the industry early last year. Each of the methods is surrounded by precautionary procedures. Each one of them is designed to promote the proper and humane handling of the animals at all stages.

During the year with the money provided by the Congress and with the direction contained in the committee reports, we have given emphasis to the problems of the small operators in making the transition to the use of these methods. It is a most difficult thing for both the Department and the industry. A great amount of progress is being made. There are a great many installations now in effect, and there are a great many more on the planning boards. I do not know at this point just what proportion of the industry may be in full compliance with the law by July 1, 1960, when it becomes effective, but there is a very substantial effort in that direction. We have had the advice of an Advisory Committee which was authorized by the law.

My own impression is that the humane societies who sponsored the law, as well as the meat packing industry, have been rather satisfied with the actions taken thus far by the Department.

## NATIONAL ARBORETUM

Mr. WHITTEN. Turning to another subject, I would like to ask you what is the status of the improvement of the National Arboretum, and include in that what your statement is as to the necessity for a headquarters, and a laboratory building for which $1,400,000 will be needed eventually?

Dr. SHAW. You recall last year in our discussion of the 1960 budget that we recommended and the Congress did include funds in the Arboretum budget to complete construction at the Arboretum of everything except this main headquarters building. So, with the funds for the current fiscal year we should complete all other items of construction that were in the plan that we have been working on for several years.

The laboratory and office building still need to be provided. It would have to take its turn in our opinion with other needs that we have for all phases of the budget. The funds that were provided to complete this construction in the current fiscal year are taken out of the 1961 budget, so they are no longer available.

RESEARCH ON HIGH AMYLOSE CORN AND GRAIN SORGHUMS

Mr. WHITTEN. We provided $100,000 for extra research on the breeding and utilization of corn and grain sorghums.

What special work was done with that additional fund? Do you have any detailed report on that?

Dr. SHAW. The funds are being used for breeding work at Urbana, Ill.; Lafayette, Ind.; Columbia, Mo.; Raleigh, N.C.; and Wooster, Ohio; as well as at Beltsville, studying the physiological and biochemistry of the protein in corn and the biochemical nature of disease resistance, the genetics and breeding of this corn, and also physiological and nutrition studies. Funds for research to develop grain sorghums with high amylose content are being used for research in Kansas, Nebraska, and Texas. I do not think we have any progress yet to report. It was started after August of last year.

ENTOMOLOGY STATION AT KERRVILLE, TEX.

Mr. WHITTEN. Several members of Congress have stated to me in connection with the proposal that they had heard that you planned to move the Entomological Station at Kerrville Station to College Station, Tex.

Would that be covered by you or by someone else?

Dr. SHAW. I think I can comment on it now.

There is no proposal in this budget, or without the budget, for any move at the present time. Our work at Kerrville has been primarily on insects affecting animals. A good bit of our toxicological work in connection with insect problems is also done there. The facilities at Kerrville are far from being adequate for a continued program. A decision will have to be made as to whether new facilities are constructed at Kerrville, or whether they may be constructed somewhere else.

Now, there have been discussions between us and the people at the Texas Agricultural Experiment Station with regard to what might be the best future for this work, and if there is new construction, there certainly are a lot of things to recommend that we build at College Station rather than at Kerrville. We would have the advantages of the facilities which they have at Texas A. & M.—the library, and various and sundry other things. But there has been no decision made as to what might be done.

Mr. WHITTEN. That would be reported to the Congress and you would have to have congressional approval?

Dr. SHAW. It is going to involve construction whenever a change is made, or even if we stay at Kerrville.

SHADE TREES AND ORNAMENTAL RESEARCH

Mr. WHITTEN. I note that last year the Congress provided $350,000 for the Forest Service for a new laboratory to study diseases of forest trees and shade trees.

To what extent does the Agricultural Research Service cooperate in this work, and what funds do you have in the present year and what funds did you request next year for this cooperative work?

Dr. SHAW. The provision of the laboratory for the Forest Service, as I remember it, authorized that our shade tree and ornamental work would also be housed at the same laboratory. That has been provided, so that our people will be housed with the Forest Service people in this new laboratory.

We have not had any increased funds for the work—we still have available the amount we had before.

Mr. WHITTEN. How much is that, and if you do not have it, you can supply it for the record.

Dr. BYERLY. The estimate for fiscal year 1961 is $54,347.

SOIL CONSERVATION SERVICE NURSERIES

Mr. WHITTEN. Through the years since I have been chairman of this committee we have had several efforts to do away with nurseries. The Department has recommended that we get rid of all of them at various periods. Since forestry is now under another subcommittee we do not have that issue, but we have had difficulty with the Department's attitude about keeping these plants where we produce seedlings. I have been advised that at the Soil Conservation Operation Nursery at Coffeeville, Miss., you plan once again to eliminate the work there.

My attention has been called to the fact that you could well use this as a plant material center and that a proper use could be made of it.

I have always tried to go along with the thought that the Government should not try to displace people in private business but neither have I ever thought that the Government should farm out at considerably higher cost those things that we have always done.

I just wonder about this particular location which we have operated for how many years—do you have any idea?

Dr. SHAW. I do not have the information.

Mr. WHITTEN. It is a rather minor operation. You have there the buildings and land and experience and your investment. I don't think it makes any sense to close out this operation.

Mr. PETERSON. Mr. Chairman, I hadn't been apprised of this. There was an effort some years ago to close out these plant stations.

Mr. WHITTEN. At that time the Congress went along with you about 50 percent and required you to hold about 50 percent of them.

Mr. PETERSON. As a matter of fact, we have expanded that program modestly, Mr. Chairman, that is, these plant material centers where we are testing the usefulness of various kinds of plants for soil conservation work to be performed by cooperators.

Mr. WHITTEN. Down there it wasn't a plant material center up to now. I think it has been for the production of seed and other things that have been used in connection with the watershed program, if my memory serves me correctly.

Mr. GRANT. I would like to look into that, Mr. Chairman. I have no knowledge on it at all. The amount that is being used by the Soil Conservation Service and proposed for 1961 does not contemplate the elimination of any of these nurseries.

Mr. WHITTEN. I wish you would check it and be sure. It is an operation that is rather minor. The Government owns the land with a long background.

Mr. GRANT. It could be that this is one of the nurseries Soil Conservation Service did operate a long time ago.

Mr. WHITTEN. Will you look into that and give me a reply?

Mr. HORAN. Couldn't we expand that to include all of the nurseries?

Mr. WHITTEN. Yes. I had my attention called to that one. If there is any contemplated closing or elimination I think we should have the full information.

Mr. GRANT. We will give you a statement on all the nurseries of the Soil Conservation Service.

Mr. HORAN. I am sure the State of Washington has operated nurseries out there.

(The information requested follows:)

STATEMENT ON SEED PRODUCTION UNIT AT COFFEEVILLE, MISS.

A seed production unit has been operated by the Soil Conservation Service for several years at Coffeeville, Miss., as a part of the flood prevention program on the Little Tallahatchie Federal project. Seed and mulching materials have been produced on a land utilization area for direct use by the Government for stabilizing critical erosion areas. The expense has been borne by flood prevention funds in lieu of purchasing such materials. It has become apparent that such seed and mulch production by the Federal Government is no longer necessary as materials are otherwise available at lower cost. This unit is located in the mild, temperate portion of the Upper Coastal Plain but it has not been operated as an observational plant materials center such as the 17 such centers in the United States operated for that purpose with conservation operations funds.

There are no plans for the elimination of the existing plant materials centers. A listing of all plant materials centers now or formerly operated by the Soil Conservation Service follows this statement.

*Status and use of plant materials centers formerly and presently operated by Soil Conservation Service (as of February 1960)*

| Location | Land status and acreage | Former use by Soil Conservation Service | Present use | | Year discontinued |
|---|---|---|---|---|---|
| | | | Agency | Use | |
| Bellingham, Wash. | Government-owned, SCS, 63.9 acres. | Tree, shrub, and grass production, observational trials. | Washington State | Disease testing, certification, and production of conservation plants. | 1954 |
| Florence, Oreg. (a subunit of Bellingham). | Leased, 7 acres | Testing plants for coastal conditions and sand dune control. | Private | Discontinued | 1954 |
| Pullman, Wash. | Government-owned, SCS, 160.5 acres. | Plant introduction and observational trials. | SCS-operated | Previous use continued | |
| Aberdeen, Idaho | Leased from Idaho State Association of Soil Conservation Districts, 40 acres. | Grass trials and seed production | do | do | |
| Pleasanton, Calif. | Government-owned, SCS, 60 acres; leased, 30 acres. | Grass and legume seed production and use trials. | do | do | |
| San Fernando, Calif. | Leased, 130 acres | Grass seed and plant production and trials. | Private | Discontinued | 1954 |
| Tucson, Ariz. | Government-owned, SCS, 45.9 acres. | Grass seed and tree and shrub production and observational trials. | University of Arizona and SCS cooperative agreement. | Previous use continued | |
| Albuquerque, N. Mex. | Indian land, leased, 667 acres | do | Indians and other private use. | Discontinued | 1954 |
| San Antonio, Tex. | Government-owned, Army, 3 acres; leased, 35 acres. | Grass-seed production and trials | Transferred to Defense Department. | do | 1954 |
| Dalhart, Tex. | Government-owned, FS, 200 acres. | do | U.S. Forest Service | Leased to private individuals; some seed production. | 1954 |
| Manhattan, Kans. | Government-owned, SCS, 181.4 acres. | Tree, shrub, and grass-seed production and observational trials. | Kansas State Agricultural Experiment Station cooperative agreement. | 40 acres SCS trials and seed production; 141 acres experiment station use. | |
| Kearney, Nebr. | Government, Defense Department, SCS-use permit, 200 acres. | do | City of Kearney | Discontinued | 1954 |
| Bismarck, N. Dak. | Formerly Government-owned, granted to States, 355 acres. | do | North Dakota Association of Soil Conservation Districts cooperative agreement for grass and tree trials. | Similar to previous use | |
| Winona, Minn. | Leased, 90 acres | Production tree and shrub and observational trials. | Transferred to Minnesota Conservation Commission. | Discontinued | 1953 |
| Ankeny, Iowa | Government-owned, Defense Department, SCS use permit, 100 acres. | Grass-seed production and nursery testing. | Transferred to Iowa Agriculture Experiment Station. | Discontinued as a nursery; general experiment station use. | 1954 |
| Zanesville, Ohio | Formerly Government-owned, acres granted to States, 202.7. | Production of trees, shrubs, and seed. | Transferred to Ohio Conservation Commission. | Production of tree seedlings | 1953 |
| Elsberry, Mo. | Government-owned, SCS, 273 acres. | Production of trees, shrubs, and grass seed for observational trials. | SCS-operated | Production plants and testing seed for field trials on limited budget. | |

*Status and use of plant materials centers formerly and presently operated by Soil Conservation Service (as of February 1960)*—Continued

| Location | Land status and acreage | Former use by Soil Conservation Service | Present use | | Year discontinued |
|---|---|---|---|---|---|
| | | | Agency | Use | |
| Thorsby, Ala. | Transferred to Alabama Polytechnic Institute, 181 acres. | Production of trees, schrubs, grasses, legumes, and trials. | Alabama Agricultural Experiment Station. | Discontinued as a nursery; seed farm, mostly corn and other standard crops. | 1953 |
| Big Flats, N.Y. | Government-owned, SCS, 203.2 acres. | Production of trees and shrubs, limited grass seed for observational studies. | SCS-operated; effective Apr. 1, 1960. | Approximately 50 acres production and testing seed and other plant materials. | |
| Howard, Pa. | Formerly Government-owned, 76.9 acres granted to States. | Trees and shrubs | Pennsylvania Game Commission; no SCS funds. | Production trees and shrubs for wildlife improvement. | 1954 |
| Beltsville, Md. | Government-owned, SCS, 60 acres. | National Plant Materials Center; use trials, production, and distribution to other centers. | SCS-operated | Same as in past | |
| Gretna, Va. | Leased, 193 acres | Production and use trials of conservation materials. | Private | Discontinued | 1954 |
| Rockhill, S.C. | Leased, 259 acres | Production of trees, shrubs, grass seed for conservation trials. | do | do | 1954 |
| Americus, Ga. | Government-owned, SCS, 340.7 acres. | Production of trees, shrubs, grass, and legumes; seed and observational trials. | University of Georgia; ½ for plant materials and ½ for experiment work by University of Georgia. | SCS cooperative agreement | |
| Brooksville, Fla. | Government-owned, U.S. Forest Service, 225 acres. | Observational trials and seed production of grasses and legumes. | U.S. Forest Service | Discontinued | 1954 |
| Arcadia, Fla. | Leased, 60 acres | | SCS-operated, beginning July 1, 1958. | Evaluation of plant materials and increase for field plantings. | |
| East Lansing, Mich. | State-owned land, 40 acres | | SCS-operated, beginning March 1957. | do | |
| Los Lunas, N. Mex. | State-owned land, 80 acres | | New Mexico A. & M., beginning March 1957. | do | |
| Corvallis, Oreg. | Department of Defense owned, 14.3 acres; leased, 28 acres. | | Service-operated, beginning October 1957. | do | |
| Kahului, Hawaii | | | Service-operated, beginning February 1957. | do | |
| Bridger, Mont. (in place of Scottsbluff, Nebr.). | Leased from Carbondale Co., Soil Conservation District, 80 acres. | | Service-operated, beginning Oct. 9, 1959. | do | |
| Spur, Tex. (in place of San Antonio, Tex.). | State-owned land, approximately 30 acres. | | Texas A. & M., beginning May 1955. | do | |

Recapitulation: 17 plant materials centers being operated as of Feb. 6, 1960; 11 by SCS and 6 by cooperative agreement.

Mr. WHITTEN. Since we will get into the details as we take up the various sections of the program, I believe that is all the general questions I have. Do you have some questions, Mr. Natcher?

PROGRESS IN BRUCELLOSIS ERADICATION

Mr. NATCHER. Mr. Peterson, in your general statement to the committee you pointed out certain facts concerning the brucellosis eradication program. I certainly want you and Dr. Shaw and Dr. Clarkson to know that this program means a lot to my section of the United States and especially my home State of Kentucky. We certainly appreciate everything that has been done for us.

I am just wondering how many States in the United States are brucellosis free. Can you give me that figure?

Dr. CLARKSON. Brucellosis free?

Mr. NATCHER. As far as your modified certification is concerned.

Mr. PETERSON. I think there are some free counties but I don't believe there are any States that would be classified as brucellosis free. I take it by "brucellosis free" you mean absent of brucellosis in the State?

Mr. NATCHER. Absent completely in the State. Do you have any State that is in that category?

Mr. PETERSON. Not to my knowledge.

Mr. NATCHER. You point out in certain sections there are modified certified brucellosis area sections. To date, you stated, 24 States, Puerto Rico, and the Virgin Islands have achieved this status and 1,848 of our 3,152 countries are certified.

The 3,152 counties are the counties where we have brucellosis in the United States; is that correct?

Mr. PETERSON. That is the total number of all counties in the United States.

Mr. NATCHER. Is that the figure you mean?

Mr. PETERSON. No. The certified counties, Mr. Natcher, are those in which there is less than 1 percent of the cattle affected with brucellosis and not more than 5 percent of the herds. That is the qualification for certification. That does not mean there is no brucellosis, as is apparent.

FEDERAL-STATE SUPPORT OF BRUCELLOSIS PROGRAM

Mr. NATCHER. The amount that is requested this time is $15,477,000. You point out, Mr. Peterson, that this is the approximate amount that is in the budget at the present time, plus the amount that this committee added of $1,250,000.

Why not recommend the proper amount be appropriated for this particular program that would be fully adequate for the States that are really participating today and want to prevent brucellosis?

Mr. PETERSON. You will note further down in my statement on page 10, Mr. Natcher, that the total State participation at this time is roughly $15 million, which indicates that the total of the Federal and State programs are in approximate balance.

There is a difference in the degree of participation by some of the States. The last tabulation I saw, and we would be glad to prepare for the record a comparison, showed that in some States 85 percent of the load was being carried by the Federal Government.

In other States 15 percent of the load was being carried by the Federal Government, showing the wide variation in State support. There is a reason for that as far as the Federal Government is concerned. Where a State had minimal abilities of its own but there was a need, we went in in an effort to encourage the State to build up its own resources. That has been rather productive in a number of States.

Mr. NATCHER. Some of the States also are operating on a 50-50 basis, too; is that correct?

Mr. PETERSON. Yes. There are some. Kentucky, for example, shows $471,000 of Federal money and $481,000 of State money. Kentucky is paying $10,000 more than the Federal Government.

Mr. ANDERSEN. Will you yield for a question?

Mr. NATCHER. I yield, Mr. Andersen.

Mr. ANDERSEN. I think earlier today, Mr. Peterson, you made the statement that in your opinion what we had in the budget here before us relative to brucellosis eradication or brucellosis control is sufficient to warrant our believing that we will have at least some improvement in the United States the following year as a result of this particular appropriation; that we are not going backward. That is your belief?

Mr. PETERSON. That is correct, sir.

Mr. NATCHER. Mr. Peterson, will the amount recommended to the committee take care of this program insofar as States are concerned who are willing to match this money dollar for dollar or put up an adequate amount to really do a good job in the State?

Are you keeping in mind the amount you request insofar as these States are concerned? The ones that today, for instance, have more money on hand than is in use in the program.

Mr. PETERSON. Our effort has been more in the direction of trying to bring the State and Federal participation into a position of equity, or a balance. I think when you consider individual States there are States where the individual State would be willing to go faster as to that State.

Mr. NATCHER. Right at that point, why not go along with that State all the way?

As far as that particular State is concerned, regardless of where it is, why not go all the way with that particular State with this brucellosis program?

Mr. PETERSON. It seems to me that this is a cooperative program in which the State has an obligation and the Federal Government has an obligation. Where the States are not carrying their share, the accretion or addition to the Federal program in that State merely represents the Federal Government carrying what the State should, in my judgment at least, be obligated to carry in its own behalf. I said earlier we had gone beyond as to individual States out and out matching in order to encourage the State and then we had shifted funds as the State had come along. We have these great variations. In the State of New York, for example, the Federal money amounts to $213,000 and the State money $1,202,000. This is contrasted with the State of Idaho where the Federal is $264,000 and the non-Federal is $199,000.

In the State of Kansas the Federal is $357,000 and the non-Federal is $171,000. Michigan is another one where the Federal Government pays $533,000 and the non-Federal $369,000. That is the State

participation. We have been trying to bring about a more equitable distribution of these funds as between the State and the Federal Government.

LEVEL OF SUPPORT FOR BRUCELLOSIS PROGRAM

Mr. NATCHER. In your opinion, Mr. Peterson, do you have enough in this bill to take care of this program?

Mr. PETERSON. As I responded to Mr. Andersen earlier, Mr. Natcher, it is my opinion that with the funds proposed in this budget, together with the some nearly $15 million the States in the aggregate will make available, according to our information, we will not only maintain the gains that have been made—the modified certified free status—but we will add additional modified certified free areas during the fiscal year to which this budget pertains.

Mr. ANDERSEN. Will you yield for a question?

Mr. NATCHER. I yield.

Mr. ANDERSEN. Would you say, Mr. Peterson, that we have sufficient funds in the budget to proceed with this program as long as you personally would like to see it, as fast you personally would like to see it go?

Mr. PETERSON. Mr. Andersen, I would like to see the incidence of brucellosis brought to the lowest possible incidence in the shortest possible time. I frankly do not know what the figure would be that could be effectively utilized to seek that position for the next fiscal year. I am of the opinion that it would be somewhat higher than the figure proposed in the budget, but I do not know of my own knowledge what that figure would be.

Mr. ANDERSEN. We recognize, of course, Mr. Peterson, that you must defend the budget which is before us. That is your duty representing the Department of Agriculture.

Mr. PETERSON. I appreciate that.

Mr. ANDERSEN. I recognize that. I certainly do not want in any way to get you to violate that particular premise, but with your permission again, Mr. Natcher, I would like to call attention for the record to our discussion earlier today. But off the record I would like to refer to a project in our Public Works Subcommittee.

That project has nothing to do whatsoever with human lives or with human health. The project simply has to do with helping these particular industries make more profits on their operations through lowering their transportation costs.

I call that to the attention of the subcommittee as a premise to this general policy question: If the Congress and if the Budget can place their stamp of approval on such a project in another division of this Congress at a 100-percent charge to the taxpayer, Mr. Natcher, why cannot the Congress or why would not the people of the United States approve of a stepped-up program in connection with the eradication or suppression of brucellosis, even though it did mean perhaps being liberal with a few States which are not too enthusiastic about that program today?

Mr. PETERSON. Mr. Andersen, I must say in all sincerity that I could not use what from your statement appears to be one wrong decision to justify another decision. I think that the two things could be considered on their merit.

As I said to you, I would like personally to see this brucellosis program move as rapidly as the funds can be effectively used to reduce the incidence to the lowest possible point.

I can only speak to the Department of Agriculture budget.

Within the funds that were available to the Department, all factors considered, I think that we made a reasonable allowance for brucellosis in the light of the immediate past history. You may differ with that point of view, and I respect any difference you may have, but if the other incident to which you make reference is wrong——

Mr. ANDERSEN. Let me say, I do not say out and out that it is wrong. I do say, however——

Mr. PETERSON. I say "if it is."

Mr. ANDERSEN. I do say, however, that this very same budget, not the agricultural budget, but the very same budget which came down to us from the President, carried that particular item chargeable to all of the taxpayers of the United States nationwide, and if that can be done for certain elements of our population, it would seem to me that we are perhaps straining too hard at this premise that has been given us today that we must keep strictly within this scope of State-Federal cooperation in this regard. I am referring now to the brucellosis eradication campaign. To me it is so very important to get that disease under control and eradicated, if at all possible, that I, Mr. Natcher, am doubtful as to the amount of money contained in this budget for this purpose.

Mr. NATCHER. As a matter of record, Mr. Andersen, I certainly want to agree with you.

Mr. ANDERSEN. At the same time, I agree with Mr. Peterson and with the gentleman across the table that we must not waste any money, but if we can utilize money satisfactorily and with good results taking care of that problem, I would like to see it done. I saw some of the ravages of that particular disease 35 years ago in my own business, and I am sure you have.

Mr. PETERSON. A great deal of it.

Mr. ANDERSEN. I wonder if for a century to come we are going to perhaps appropriate money to continue to piddle along with this rather than to make a decided effort to knock it out.

Mr. PETERSON. Mr. Andersen, I couldn't agree that we are piddling along, by any means.

Mr. ANDERSEN. We are too moderate in our attempts. We did not do that when we were hit by this foot-and-mouth disease. We knocked it out.

Mr. PETERSON. Foot-and-mouth disease, I can only say, is a different disease. As was pointed out here today, it moves very rapidly.

Mr. ANDERSEN. I know it does.

Mr. PETERSON. It is devastating in its character.

Mr. ANDERSEN. I was down in Mexico and looked the situation over in 1946.

Thank you, Mr. Natcher.

Mr. PETERSON. I feel very strongly that all of the obligation in brucellosis is not a Federal obligation. I admit there is a Federal obligation, but I think insofar as the Federal Government goes beyond what might be termed an "equitable effort," then the States and local communities and herd owners themselves are discouraged from putting their own efforts into it.

TOBACCO RESEARCH

Mr. NATCHER. Mr. Peterson, in your statement to the committee you point out certain commodities that under the budget will receive additional amounts for research. Is there any increase or additional amount requested in this budget which is to be used for tobacco research?

Mr. PETERSON. May I ask Dr. Shaw or Dr. Byerly to identify that one?

Dr. SHAW. The only increase would be the relationship of the item on pesticide residues to crops, including tobacco. There would be some relationship there.

Mr. NATCHER. That would be an indirect relationship; would it not, Dr. Shaw?

Dr. SHAW. In that item, we are intending to work on the pesticide residue problem across all agricultural commodities, tobacco included, but there is nothing definite so far as tobacco.

Mr. NATCHER. In your statement, Dr. Shaw, you make certain reference to tobacco research and certain matters that have taken place during the calendar year of 1959. In the attachment to your statement I notice certain matters concerning tobacco.

Can you tell me if in the budget for fiscal year 1960 any additional funds were requested for tobacco research? That is the present budget under which we are operating, Dr. Shaw.

Dr. SHAW. No; there was not any.

Mr. NATCHER. I wonder if at this point in the record you will file a short statement showing any new discoveries that are made concerning tobacco and what progress, if any, we have as far as tobacco is concerned, Dr. Shaw? I notice in your statement in different sections you refer quite generally to tobacco and I wonder if you would just put this in a short statement at this point in the record?

Dr. SHAW. I will be very glad to.

(The information referred to follows:)

PROGRESS IN TOBACCO RESEARCH

*New tobacco varieties*

A new burley-type tobacco variety, Burley 37, released jointly in January 1960 by the U.S. Department of Agriculture and the Tennessee Agricultural Experiment Station, is the first commercial burley-type variety to combine black shank and wildfire resistance. It also carries considerable resistance to black root rot and Fusarium wilt and has the desirable standup habit of growth. This variety could be grown to advantage in the burley area of Kentucky-Tennessee where these diseases are causing serious losses. It has higher resistance to black shank and gives better quality cured leaf than Burley 11A and 11B released to growers recently. It is not as high yielding as Burley 21 (released by USDA and Tennessee in 1955), when grown in the absence of black shank. Current work is being directed toward the development of a variety which will combine the desirable characteristics of Burley 21 with a high degree of resistance to the several diseases prevalent in the burley producing areas.

A tobacco variety, S.C. 58, released jointly in February 1959 by the U.S. Department of Agriculture and the South Carolina Agricultural Experiment Station, carries resistance to black shank and resembles Gold Dollar and Jamaica, two popular old line varieties of the flue-cured type.

Two new flue-cured varieties were recently released jointly in 1959 by the U.S. Department of Agriculture and the North Carolina Agricultural Experiment Station and Department of Agriculture. N.C. 73, released in February 1959, carries resistance to black shank, and resembles Hicks, a currently popular variety. N.C. 75, released in December 1959, carries resistance to black shank, black-root rot, and Fusarium wilt, combined with the ability to give cured leaf similar to that obtained from Hicks' Broadleaf.

A breeding line, Pee Dee 611, which is the first known carrying stabilized resistance to the root knot nematode, was released in November 1959 to plant breeders by the U.S. Department of Agriculture and the South Carolina Agricultural Experiment Station. The basic PD 611 breeding line will be used as a parent in producing commercial varieties resistant to this destructive nematode disease which is widespread throughout the flue-cured production region in the southeast from Florida to Virginia.

Root knot and other nematodes caused an estimated annual $17 million loss in North Carolina alone from 1956–58 even though soil fumigation with chemicals is a common practice. Plans have been developed to increase seed of a very promising root-knot-resistant breeding line which will be released to growers in 1961 if performance in the 1960 extensive experimental trials continues to be satisfactory. The root-knot-resistant breeding line also has combined resistance to black shank. This important development is a result of cooperative research with North Carolina. An extensive breeding program is necessary to develop varieties of improved quality which meets consumer demands and varieties with combined resistance to all of the important diseases so growers may profitably produce the crop. Tobacco diseases tend to spread and overlap making the difficult job of producing varieties with multiple disease resistance a necessity.

A new variety of cigar-binder type, designated Havana 501 was released February 15, 1960. It is the result of Department cooperation with Wisconsin. Havana 501 is the first variety of Havana-type tobacco with resistance to black-root rot. It yields about the same as the popular variety Havana 142, except that in some fields where wildfire was present last year there was nearly a total loss of Havana 142 plantings but practically no wildfire and normal growth of the new variety. The new variety which also has mosaic resistance is superior in yielding ability and quality to the mosaic resistant variety Havana 425. Further work is necessary to stabilize resistance to wildfire in Havana 501 and to develop varieties with greater resistance to black root rot. Breeding lines with immunity to root rot from a wild species as well as combined resistance to the other disease are being evaluated.

Progress is being made in developing an improved disease-resistant cigar-filler variety adapted for growing in Pennsylvania.

Breeding work is underway to add more disease resistance to cigar-wrapper tobaccos. Breeding lines with combined resistance to wildfire, tobacco mosaic, black-root rot and fleck, have been grown by industry cooperators in the Connecticut Valley. The black-root-rot resistance approaches immunity to the disease, a characteristic transferred from a wild species by Department scientists at Beltsville. Frequently, blue mold causes severe losses to the shade-wrapper tobacco. Breeding lines with resistance to blue mold and fleck are in development.

The resistance to blue mold is determined in the seedling stage at Beltsville and the yield and quality potential is determined in shade fields in the Connecticut Valley. The research is cooperative with the Connecticut Agriculture Experiment Station and industry.

*Tobacco production research*

Research on fertilization, cropping systems, cultural and handling practices is being conducted in the several areas where different types of tobacco are grown. Tests in Kentucky and Tennessee have shown that high quality tobacco is associated with liberal applications of potash with proper cropping sequence and balance in other fertilizer constituents. These general principles also apply with respect to flue-cured, cigar, and Maryland-type tobaccos. A cooperative research project in Kentucky relating to uptake of nutrients and quality is showing striking results. Such information will be invaluable in directing future work on quality studies, about which so little is known, but which is so important from the standpoint of both the producer and consumer.

In tests on plantbed management, methyl bromide has been found to give effective control of soil-borne diseases and most weeds on a variety of soils at several locations. Other materials are being tested.

Tobacco researchers at Beltsville, Md., with assistance from the U.S. Weather Bureau, U.S. Public Health Service, the California and Connecticut Experiment Stations, and the Cigar Manufacturers Association, have obtained conclusive evidence that the inciting agent of a serious leaf spot disease of tobacco, "weather fleck", is caused by air pollutants, primarily high concentrations of the airborne oxidant, ozone. The disease is most important to cigar wrapper production in the Connecticut Valley (where over $5 million damage occurred in 1959) and in Canada, but occurs with varying degrees of severity on the types in other areas of this country. This finding solves a problem the answer to which has been sought

for over 20 years. It also points up the need for studies on the importance of air pollution problems on plant growth in other areas of the country.

A new method developed cooperatively by the U.S. Department of Agriculture, State agricultural experiment stations, and the tobacco industry has speeded up the indexing of tobacco breeding lines to assist in the development of improved quality tobaccos. The total and kind of alkaloid present in tobacco has a marked effect on tobacco quality. The alkaloid nornicotine, which has been found to be objectionable, has been chemically identified and eliminated from certain advanced breeding lines and certain varieties have been purified by testing the foundation seed from which certified tobacco seed are later produced. This is an example of how progress in identifying the various constituents will aid in producing tobaccos of high quality.

*Control of tobacco hornworms and budworms, and cabbage caterpillars*

Sprays containing spores of a bacterium known as Bacillus thuringiensis gave excellent control of tobacco hornworms on tobacco in cooperative experiments by Federal and State workers in North and South Carolina and in several Eastern States. Results of field experiments have also shown that when applied in corn meal baits this disease organism also controls budworms on tobacco; although, applied in sprays or dusts, this disease was only partially effective in budworm control. This insect pathogen gave as good hornworm control as endrin, the most effective insecticide in use against this insect. Although endrin controls tobacco budworms as well as hornworms, it leaves an undesirable insecticide residue on the harvested crop. Spray applications of the spores of this pathogen have shown promise in the control of cabbage caterpillars and fall armyworms of cabbage. These results point the way to the possible integration of biological and chemical methods for control of certain insects leading toward the reduction or elimination of insecticide residue hazards.

*Progress toward safer insecticides for insect pests of tobacco*

Progress has been made in the search for new insecticides which can be used on tobacco foliage without leaving objectionable residues. Thiodan is now recommended against the green peach aphid on tobacco. Experimental results have also indicated that a mixture containing Thiodan and parathion is effective against the cabbage looper on tobacco. This insect has developed resistance to most of the recommended insecticides. Experimental results also indicate that Thiodan, Guthion, Shell chemical SD–4402, and Dipterex are promising insecticides for the control of tobacco budworms and hornworms. These may prove to be of value in all-purpose insecticide mixtures that can be used against the tobacco insect pest complex with greater safety and with less objectionable residues than the insecticides in present use.

*Research on irrigation of tobacco*

In cooperative irrigation studies at Tifton, Ga., and Chatham, Va., data are showing that combinations of irrigation and relatively high fertilizer rates are markedly increasing tobacco yields. This increase occurs largely from the last two primings. Irrigation at transplanting time appears to be exceedingly important. It is also essential not to overirrigate because of the deleterious effects on the tobacco root system. The bad effects are particularly obvious when irrigation is followed by rain.

*Research on curing tobacco.*

Research on bulk curing methods of bright leaf tobacco in cooperation with the North Carolina Agricultural Experiment Station has progressed to a point where on-the-farm trial is planned for next season. The methods being developed have possibilities for substantial reduction in labor requirements and costs for the handling and curing of this tobacco.

Research on the curing of burley tobacco in cooperation with the Tennessee Agricultural Experiment Station indicates the possibility of reduced labor and increased capacity for curing barns by the use of new racking methods combined with supplemental heat.

Research in cooperation with the Virginia Experiment Station is being conducted on the use of several means of heating for curing aromatic tobacco (this type of tobacco is an import commodity).

*Utilization research on tobacco.*

Progress is also being made in studies on the constituents in tobacco and tobacco smoke and their relation to the qualities preferred by consumers. During

the past year, three new sterols were isolated and identified, making a total of five that have been identified for the first time in tobacco leaf. The development of a specific analytical method for isolating the paraffins in leaf tobacco is making it possible to more accurately identify these substances, which are closely related to the smoking quality of tobacco.

In studies of cigar smoke, the aldehydes and ketones—which are associated with the aroma of the smoke—have been isolated, some of them also for the first time. The work with cigar smoke is in cooperation with the Cigar Manufacturers Association, which is financing two fellowships at our Philadelphia laboratory.

The objective of Department work on tobacco composition is to contribute to a fuller understanding of tobacco chemistry, which is urgently needed by plant breeders and manufacturers in producing tobacco and tobacco products that meet consumer demands.

*State Experiment Station Research on Tobacco under Federal-grant funds.*

Preliminary tests by the Kentucky station on planting burley tobacco seed directly in the field through a plastic mulch instead of planting in the customary tobacco beds indicates that labor could be reduced by machine planting in the field to approximately two hours per acre, a labor reduction of 97 percent. It is estimated that direct field planting would reduce production cost by approximately $15 per acre. This reduced cost would represent an increase in net return of approximately $3 million annually to Kentucky burley producers alone.

A more uniform, faster, and accurate method of indexing tobacco for black shank resistance was developed at the Virginia station. Since results in the field are erratic, probably due to escapes, it was felt that this could be done better under environmental conditions which could be changed or varied as needed. Consequently, this work was done in a controlled environment room in the laboratory. In all tests susceptible control plants were killed, indicating that there were no escapes whereas the resistant plants survived. Such results are obtained in from 6 to 8 weeks after seeding but under field conditions, a year's time is required to obtain results.

In recent years, two high-yielding tobaccos, Dixie Bright 244 and Coker 139, were released by the North Carolina station for commercial production. The station also found that mammoth tobacco varieties differ from standard varieties in their response to length of the daylight period. As a result of an extended vegetative growth period, mammoth varieties produce more leaves, higher yields, and fewer suckers than the day-neutral varieties. Unfortunately, however, the quality of the leaf produced on mammoth types, as measured by subjectively determined value per hundredweight, is inferior to that of most commercial varieties. Studies showed that the average percent nicotine of standard varieties in this test was 1.62, while that of the mammoth strains was only 1.15. The degree of physiological dilution of nicotine in mammoth strains appears to be associated with time and height of topping. Eventually, this desirable quality characteristic plus other superior yield characters of mammoth tobacco may be incorporated into commercial types.

## RESEARCH LABORATORY FACILITIES

Mr. NATCHER. Mr. Peterson, you make certain reference in your statement concerning laboratories and on page 14, I believe you say we have the Gainesville, Fla. laboratory. Yesterday, at the time we had Mr. Grant before the committee, I requested that he file with his statement a list of all laboratories, facilities, equipment that we have constructed during the past 6 years.

Again, Mr. Peterson, I want to call your attention to the need for soil and water research laboratory facilities in my section of the United States and as I have pointed out for the past 3 years, there is a need at this time for this type of facility in this section of the United States.

Mr. Chairman, with your permission, I would like to file at this point in the record a statement which appears on page 472 of part II of the hearings for the Subcommittee on Agricultural Appropriations for the fiscal year of 1959.

Without objection, it is so ordered.

(The information referred to is as follows:)

STATEMENT BY MR. NATCHER

Soil and water are two of the most important resources of the State of Kentucky and the Nation. These two vital resources must be protected and effectively utilized for the long-term public welfare. Soil erosion is a particularly serious problem on a majority of Kentucky's 193,000 farms. The high percentage of sloping lands, the erosive nature of many of the soils, and the character of the rainstorms create an erosion problem which is more serious than is encountered over much of the Nation. Also, development and utilization of Kentucky's water resources are of prime importance to agriculture, municipal, and industrial development. Drought, poor drainage, and rapid runoff cause water problems of critical importance.

The increasing demand for application of conservation measures in Kentucky, under both the Public Law 566 programs, creates a growing need for basic information which will lead to more effective methods of soil and water conservation.

Lack of adequate research information is handicapping efforts of State and Federal agencies in planning and applying land and water use and watershed protection programs in the State. At no time has a comprehensive coordinated soil and water conservation research program been conducted in the State and very little research is underway at present. As a result, the Soil Conservation Service and others have had to rely mainly on extrapolation of research data from distant, out-of-the-State points for use in formulation of the runoff and erosion control practices and water management programs in the State. Information thus derived often has been limited in application due to the soil, climatic, topographic, and cropping conditions peculiar to the State and region.

Kentucky is one of only two of the larger States in the entire humid region which does not have federally supported cooperative soil and water conservation investigations.

Studies of the soil and water research needs of the State have revealed critical and immediate problems for which information is lacking. These studies indicate the need for a comprehensive research program to provide essential data for land and water use and in watershed protection programs. This research should be directed in three major areas as follows:

1. Development of methods of soil, water, and crop management which will control runoff and erosion on farms and small watersheds and at the same time provide for efficient utilization of soil and water resources. Specific studies under this heading could include:

(*a*) Establishment of normal amounts of runoff and soil loss under several levels of crop cover for use as a base in estimating runoff and erosion under various land uses and treatments.

(*b*) Evaluation of different soil and crop management practices such as high fertilization, residue mulching, tillage practices, crop rotation, and pasture renovation, as to their effect on soil and water losses under Kentucky soil and climatic conditions.

(*c*) Determination of the erodability, infiltration and water-holding capacity of different soil types and the effect of slope on soil erosion.

(*d*) Development of cropping systems, crop residue use and related management practices for maintaining soil tilth and productivity.

(*e*) Establishment of the optimum strip width, and row grades for stripcropping and size, spacing and adaptability of terraces and diversions under Kentucky conditions.

(*f*) Improvement of gully control including grass waterways and structures.

(*g*) Determination of dependable yields of runoff under varying soil and topographic conditions.

2. Development and utilization of water resources. This is a critical need in Kentucky and a research program should include the following studies:

(*a*) Development of methods of storing water for agricultural use with special emphasis on seepage losses from farm ponds.

(*b*) Study of factors relating to the distribution and utilization of water on the farm.

3. Development of effective drainage and water-management techniques to facilitate effective and efficient land use in areas troubled with accumulation of excess water. Projects such as the following should be considered:

(*a*) Development of methods for managing sidehill seeps in order to protect lower lying cropland.

(*b*) Investigation of the practicality of controlling the water table in bottomland areas through subsurface drainage by gravity flow or pumping.

(*c*) Development of methods and techniques for land forming, smoothing, and leveling, singly and in combination with surface and subsurface drainage.

PROGRAM FOR FEDERAL-STATE RESEARCH PROPOSED

It is proposed to initiate a soil- and water-conservation and management-research program of a scope which would permit effective attack on these problems. Such a program of research would require a coordinated team of agricultural engineers, soil scientists, and agronomists, together with adequate research equipment and facilities and operating funds.

A staff of six to eight scientists and engineers, plus aids and clerk-stenographers, would be required.

For efficient operation of this research program, a suitable building with office and laboratory space should be constructed.

COSTS OF PROPOSED RESEARCH

The costs of such a research program have been estimated as follows:

| | |
|---|---|
| 1 GS–13 project leader | $10,065 |
| 1 GS–12 agricultural engineer | 8,645 |
| 1 GS–12 soil scientist | 7,570 |
| 2 GS–11 soil scientists, at $7,035 | 14,070 |
| 1 GS–9 agricultural engineer | 6,115 |
| 1 GS–7 soil scientist | 5,335 |
| 1 GS–5 agricultural engineer | 4,480 |
| 6 GS–4 agricultural aids, at $3,415 | 20,490 |
| 2 GS–3 clerk-stenographers | 6,350 |
| 8 w.a.e. laborers, at $2,000 | 16,000 |
| 14 percent overhead [1] | 17,500 |
| Total [2] | 116,620 |

[1] ARS (includes contract research, business operations, supervision, etc.).

[2] This leaves $8,380 for likely pay increases for biological scientists, bringing the grand total for salaries to $125,000.

*Annual operating funds*

| | |
|---|---|
| Machinery replacements, new accessories, and upkeep | $8,000 |
| Installations (instrumented runoff plots, terraces, pond sealing, drainage, irrigation, etc.) | 50,000 |
| Laboratory and engineering equipment, additions, and replacement | 14,000 |
| Travel (per diem, transportation to meetings, outlying locations, etc.) | 6,000 |
| Automotive (replacement and upkeep) | 3,000 |
| Data analysis (IBM) | 5,000 |
| Overhead [1] | 14,000 |
| Total | 100,000 |
| Initial nonrecurring funds: [2] | |
| 2 rainfall simulators | 24,000 |
| 1 truck (trailer) | 5,500 |
| 1 passenger car | 1,500 |
| 2 couriers | 3,000 |
| 4 trucks (pickup) | 5,600 |
| 4 sets tractors and accessories | 20,000 |
| Erosion and runoff installations | 26,000 |
| Farm water supply development installations | 17,000 |
| Drainage and water management installations | 7,000 |
| Miscellaneous items (transits, pressure membrane equipment, soil-sampling tubes, office furniture, ovens, etc.) | 17,000 |
| Total | 126,600 |

[1] ARS (includes contract research, business operations, supervision, etc.).

[2] These funds would be devoted largely to purchase of major items of equipment and in making major research installation on university farms.

RESEARCH ON USE OF LIQUEFIED PETROLEUM GAS

Mr. NATCHER. Dr. Shaw, I would like to know if your attention has been called to a need for basic research utilizing liquefied petroleum gas?

Dr. SHAW. I have had requests made for us to increase our efforts in that, yes. We have a small amount of work going, using the liquefied petroleum gas in weed control in cotton and in the curing of burley tobacco, but it is a limited program.

The budget that we have before us will not provide for any increase. It will continue the work at the present level. I point out, in this connection, that there is not very much increase in the budget for other programs. We are not singling this one out as against others because there is only one item on pesticides in the whole field of agricultural production.

Mr. NATCHER. This matter has been called to your attention during the past year, I believe.

Dr. SHAW. Yes.

Mr. NATCHER. Dr. Shaw, it is my understanding that representatives of the Liquefied Petroleum Gas Association will appear before our committee at the proper time.

Can you tell me, Dr. Shaw, the amount of money that is involved in any type of research along this line at the present time?

Dr. SHAW. I would have to insert it in the record, Mr. Natcher, because I do not have the figure with me.

The present work is on use of LP gas for curing burley tobacco and the use of LP gas on flame control of weeds in cotton. We had small projects on the use of LP gas for chick brooding, and on shade-grown, broad leaf, and Havana seed tobaccos, but the work has been completed.

We will insert the amount for our current research in the record.

(The information to be supplied is as follows:)

RESEARCH CONCERNED WITH LIQUID PETROLEUM GAS

AGRICULTURAL RESEARCH SERVICE

During fiscal year 1960, it is estimated that approximately $13,000 will be obligated for research dealing with the use of liquid petroleum gas for the curing of burley tobacco in cooperation with the Tennessee Agricultural Experiment Station and for controlling weeds in cotton in cooperation with the Mississippi and California Agricultural Experiment Stations.

STATE EXPERIMENT STATION RESEARCH

Investigations on burner design, burner placement and angle, and time of flaming of cotton are in progress at the Arkansas ($15,000) and California ($2,000) stations supported in part by Hatch and regional research funds. California data indicate that stand or yield are not reduced by flaming when the cotton is 4, 6, or 8 inches in height. Combination of preemergence herbicide, postemergence oil and flaming reduced hoe labor 65 to 82 percent as compared to conventional cultivation in Arkansas experiments. Parallel flaming was superior to conventional flaming.

Early investigations on flame cultivation of cotton employing liquid petroleum gas were conducted at the Mississippi and Arkansas Agricultural Experiment Stations. Satisfactory burners and equipment were developed for controlling weeds during the mid-to-late season. The burners designed by these stations have been the prototype for industry.

The Georgia station is currently studying the use of liquid petroleum gas heating units for curing of tobacco. Emphasis is placed on refinements of design or

technique which will lead to lower heating requirements, less radiation loss, and optimum combinations of heat and induced air. Information is not available on the amount of State funds devoted to this project.

Mr. NATCHER. Mr. Peterson, I certainly enjoyed your fine statement and Dr. Shaw, I want to thank you for your fine statement.

As you gentlemen know, I am definitely of the opinion that the Agricultural Research Service of the Department of Agriculture is doing fine work. I say that to you advisedly. I am of the opinion that more consideration should be given to new research for tobacco. It is necessary today.

Mr. ANDERSEN. Mr. Natcher, will you permit me to join at this time in complimenting the work these gentlemen are doing?

I think they are doing a very fine job on a very difficult subject.

Dr. SHAW. Thank you.

Mr. PETERSON. Thank you, both of you gentlemen.

Mr. ANDERSEN. May I ask a question off the record?

Mr. NATCHER. Mr. Peterson, the people of this country are benefiting from our research program.

Mr. PETERSON. Thank you very much, Mr. Natcher.

## TUBERCULOSIS ERADICATION PROGRAM

Mr. SANTANGELO. Mr. Chairman, I want to direct your attention to the TB eradication. What happens when you find a herd is infected with TB?

Dr. CLARKSON. Under the cooperative arrangements between the State and the Federal Government, the herd is quarantined by the State officials or by the county officials, if that is delegated to them by the State.

The reactors are required to be removed and sent to slaughter. Then a schedule of retesting is required until it is determined that the herd is free of the disease. After each removal of any reactors, the premises are required to be cleaned and disinfected.

Mr. SANTANGELO. Is there any condemnation of any of the animals which have TB?

Dr. CLARKSON. Yes. The animals found to be infected and required to be slaughtered are called condemned animals. They are marked as reactors and are appraised. The State and Federal Governments join in payment of an indemnity not exceeding one-third of the difference between the salvage value and the appraised value, with certain limitations. The Federal limitation is $25 for grade animals, $50 for purebreds.

Mr. SANTANGELO. I notice in the justification the amount of indemnification for the animals destroyed because of brucellosis, but there is no chart showing the amount of indemnification for destruction of animals for TB.

I was wondering whether there were any provisions for this.

Dr. CLARKSON. That can be furnished, Mr. Santangelo. It is because there have been relatively few in recent years that the chart was omitted.

(The information referred to follows:)

*Eradicating tuberculosis, fiscal year 1959*

| Location | Indemnities | | Operating | | Total | |
|---|---|---|---|---|---|---|
| | Federal (obligations) | Non-Federal (estimate) | Federal (obligations) | Non-Federal (estimate) | Federal (obligations) | Non-Federal (estimate) |
| Alabama | $188 | $500 | $17,595 | $49,500 | $17,783 | $50,000 |
| Arizona | 525 | 1,000 | 25,722 | 21,360 | 26,247 | 22,360 |
| Arkansas | 100 | 1,400 | 15,146 | 1,000 | 15,246 | 2,400 |
| California | 47,656 | 100,000 | 118,841 | 495,187 | 166,497 | 595,187 |
| Colorado | 75 | 1,000 | 14,375 | 4,469 | 14,450 | 5,469 |
| Connecticut | 1,576 | 18,000 | 22,756 | 75,910 | 24,332 | 93,910 |
| Delaware | 203 | 2,000 | 5,378 | 22,000 | 5,581 | 24,000 |
| District of Columbia and regional business offices | | | 360,673 | | 360,673 | |
| Florida | 7,881 | 7,881 | 13,371 | | 21,252 | 7,881 |
| Georgia | 3,487 | 5,000 | 25,485 | 79,200 | 28,972 | 84,200 |
| Hawaii | 540 | 3,000 | | 75,000 | 540 | 78,000 |
| Idaho | 75 | 5,000 | 8,193 | 25,000 | 8,268 | 30,000 |
| Illinois | 10,314 | 34,575 | 29,324 | 868,593 | 39,638 | 903,168 |
| Indiana | 11,183 | 14,000 | 6,016 | 162,873 | 17,199 | 176,873 |
| Iowa | 6,680 | 12,093 | 62,777 | 482,907 | 69,457 | 495,000 |
| Kansas | 1,495 | 1,800 | 20,117 | 50,334 | 21,612 | 52,134 |
| Kentucky | 4,329 | 4,329 | 19,567 | 36,671 | 23,896 | 41,000 |
| Louisiana | 2,575 | 5,000 | 34,584 | 25,000 | 37,159 | 30,000 |
| Maine | 150 | 2,000 | 7,877 | 45,000 | 8,027 | 47,000 |
| Maryland | 1,074 | 10,000 | 21,664 | 34,695 | 22,738 | 44,695 |
| Massachusetts | 1,042 | 6,000 | 13,677 | 90,000 | 14,719 | 96,000 |
| Michigan | 168,147 | 168,147 | 40,995 | 56,653 | 209,142 | 224,800 |
| Minnesota | 719 | 1,000 | 17,039 | 165,041 | 17,758 | 166,041 |
| Mississippi | 558 | 600 | 8,871 | 1,900 | 9,429 | 2,500 |
| Missouri | 563 | 5,000 | 26,168 | | 26,731 | 5,000 |
| Montana | 25 | 200 | 10,473 | 10,000 | 10,498 | 10,200 |
| Nebraska | 563 | 1,000 | 28,011 | 45,000 | 28,574 | 46,000 |
| Nevada | 300 | 1,000 | 6,096 | 3,700 | 6,396 | 4,700 |
| New Hampshire | 110 | 500 | 4,328 | 39,913 | 4,438 | 40,413 |
| New Jersey | 4,564 | 15,000 | 28,130 | 136,035 | 32,694 | 151,035 |
| New Mexico | 227 | 250 | 6,791 | 1,500 | 7,018 | 1,750 |
| New York | 12,922 | 50,000 | 32,394 | 507,875 | 45,316 | 557,875 |
| North Carolina | 275 | 1,000 | 33,341 | 15,500 | 33,616 | 16,500 |
| North Dakota | 130 | 500 | 14,104 | 7,500 | 14,234 | 8,000 |
| Ohio | 27,150 | 30,000 | 43,044 | 176,000 | 70,194 | 206,000 |
| Oklahoma | 1,430 | 2,000 | 20,697 | 12,500 | 22,127 | 14,500 |
| Oregon | 364 | 2,500 | 29,210 | 20,000 | 29,574 | 22,500 |
| Pennsylvania | 20,093 | 54,000 | 27,638 | 415,000 | 47,731 | 469,000 |
| Rhode Island | 14 | 4,000 | 9,192 | 21,875 | 9,206 | 25,875 |
| South Carolina | 374 | 1,000 | 13,379 | 18,100 | 13,753 | 19,100 |
| South Dakota | 1,124 | 1,124 | 36,132 | 17,876 | 37,256 | 19,000 |
| Tennessee | 2,337 | 2,800 | 10,657 | | 12,994 | 2,800 |
| Texas | 4,844 | 15,000 | 108,094 | 34,286 | 112,938 | 49,286 |
| Utah | 2,229 | 5,000 | 38,518 | 15,000 | 40,747 | 20,000 |
| Vermont | 1,616 | 10,000 | 15,110 | 40,000 | 16,726 | 50,000 |
| Virginia | 1,505 | 1,505 | 18,053 | 35,495 | 19,558 | 37,000 |
| Washington | 1,361 | 3,500 | 18,519 | 11,500 | 19,880 | 15,000 |
| West Virginia | 230 | 600 | 21,164 | 2,600 | 21,394 | 3,200 |
| Wisconsin | 122,988 | 122,988 | 28,954 | 288,383 | 151,942 | 411,371 |
| Wyoming | | 100 | 17,014 | 12,400 | 17,014 | 12,500 |
| Puerto Rico | 375 | 9,840 | 33,696 | 33,059 | 34,071 | 42,899 |
| Total | 478,285 | 744,732 | 1,588,950 | 4,789,390 | 2,067,235 | 5,534,122 |

Mr. SANTANGELO. I see, according to the chart, with respect to the TB eradication, the percentage of infection, only about two States in the Union have a high percentage; and from one of those States there was a big shipment to the State of New York, in which I live. That is Wisconsin. Are the products of the herds where you find infection permitted to be shipped; or do you go into the subject with respect to the cheeses and the other products which are derived from the milk products of the herd?

Dr. CLARKSON. Immediately upon finding an infection, the milk from those infected animals is withheld from the channels of commerce. The milk from the remainder of the herd is not withheld. The herd itself is required to be held under restriction for the schedule

of retesting, but the milk from those animals is not withheld until they are found to be infected.

Some of the herds are cleaned up after one test. Some take several tests before they are cleaned.

Mr. SANTANGELO. In normal situations the cheeses may already have been made and you determine some of the cattle are infected with TB. Is anything done with respect to the cheeses which have been prepared before the discovery of the infection?

Dr. CLARKSON. There is no going back to the products that have come before the test was made. As a good measure of protection in that direction, however, the cheeses and other products are made with pasteurized milk or cream. This is a general protection that is given.

Mr. SANTANGELO. There is no testing of the cheeses?

Mr. PETERSON. With pasteurization, the viability of the tuberculosis organism does not carry over into the finished product. While nobody wants to have milk from sick animals of any kind in the end product, the danger to human health is in the raw product—the raw milk which might be drunk by the farm or other family.

Mr. SANTANGELO. But not insofar as butter or cheese is concerned?

Mr. PETERSON. No, that is my understanding.

Mr. SANTANGELO. That assures me somewhat because I know the State of New York is getting a good deal of competition from the State of Wisconsin with respect to its cheeses and butters and other dairy products.

### RESEARCH AND CONTROL OF RAGWEED

Dr. Shaw, can you tell me, is the Department doing any research with respect to eliminating ragweed, which is such a source of discomfort to hay fever sufferers?

Dr. SHAW. I don't know that we have anything specifically on ragweed. We would have chemical methods that would be effective for its control. We are not actively engaged in cleaning up ragweed in areas where it might be causing hay fever.

Mr. PETERSON. Mr. Santangelo, there are chemicals now on the market which, when applied at the proper times, will destroy ragweed. Some States have control programs operated under the police authority of the State. When ragweed is discovered upon a property the owner is directed to eradicate the infestation. If he does not, the State does, and then the owner is billed for it. The actual destruction of the ragweed is a matter for the control of the States. So far as methods of control are concerned, we do have chemicals which will destroy the weed if properly applied.

Mr. SANTANGELO. Destruction before the growth of the weed, or is it after the growth?

Dr. CLARKSON. It is at a certain stage of growth. I am not sure as to the precise stage.

Most of the weedicides are applied when the growth is tender. I do not know the exact stage of application with respect to the ragweed.

Dr. SHAW. It would be before pollenization.

Mr. SANTANGELO. Before August 15, when everyone starts to sneeze and suffer?

Dr. SHAW. Yes, sir.

Mr. SANTANGELO. There is no program of financial assistance by the Federal Government with respect to the States in this work?

Mr. PETERSON. No, sir.

Mr. SANTANGELO. I am pleased to listen to Congressman Andersen in talking about eliminating some of the diseases in animals because they affect human beings. However, this program has a direct effect upon human beings, and nothing is being done insofar as cooperation between the Federal Government and the States is concerned. I think there are more people who suffer from ragweed than almost any other type of weed infection and, perhaps, this is one program where the Department of Agriculture might interest itself to relieve some of the millions of people in the United States who suffer from ragweed.

If we try to protect the people indirectly from animal diseases, why not protect them directly against this particular ragweed, or any pollenization which really crucifies them for about 8 weeks?

I recommend it to you for your consideration.

I want to join with my colleagues in expressing my appreciation for what you gentlemen are doing with respect to the elimination of some of these diseases, as well as the type of work you are doing in the research program.

While I do not have too much contact with it, or as much as these gentlemen do, I can see the benefits that are being derived from your work, and I want to associate myself with the remarks that my colleagues made with respect to the matters about which you have testified today.

Mr. PETERSON. Thank you very much, sir.

Mr. NATCHER. The committee will stand in adjournment until 1 o'clock, tomorrow afternoon.

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WEDNESDAY, FEBRUARY 17, 1960.

Mr. WHITTEN. The committee will come to order.

### CROPS LABORATORY, LOGAN, UTAH

We will now proceed with general questions.

Now, Dr. Byerly, what is the status of the new laboratory at Logan, Utah? Do you have any general remarks that you would like to make first?

Dr. BYERLY. No.

We have the intermediate drawings due for submission February 26. Final drawings and specifications are due for submission April 15. We will advertise the job approximately April 30 and open bids May 30.

With regard to the status of site acquisition, title evidence went to the U.S. Attorney General for final acceptance February 2.

### BOLL WEEVIL LABORATORY, STATE COLLEGE, MISS.

Mr. WHITTEN. What about our boll weevil research laboratory at State College, Miss.?

Dr. BYERLY. This is in a similar status. The record indicates that a warranty deed covering the 10 acres, more or less, of State-owned land has been prepared by the Department's regional attorney at Little Rock, has been forwarded to the university for acceptance and signature of the authorized personnel of the board of trustees of the institutions of higher learning of the State of Mississippi.

That authority was granted by special legislative enactment of house bill 8. If accepted and signed by the board, the regional attorney requests the ARS liaison employee for this project and the State College to take the signed deed to the county court house for recording. We are anticipating receipt of that instrument momentarily, after which the Office of the General Counsel will submit all title evidence to the Attorney General of the United States for review and final acceptance of title in the name of the United States of America.

Mr. WHITTEN. You have proceeded with your preliminary work in advance of getting that all straightened out?

Dr. BYERLY. Yes.

Mr. WHITTEN. I have talked to numerous people about the loss to the farmers and the Government from this boll weevil damage. They have stressed with me the very necessary preliminary planning and the bringing together of a proper staff so that the minute the facility is open and available we will have the staff ready. We should get the preliminary work done so as to expedite this work.

What is planned by the Department and what could you do with some urging from this committee, or from the Congress? Your plans will disclose what you need there and doubtless you will bring together some of your experienced people from other areas. Is there any way that you could have the tentative plans made so that you could open up fairly soon?

Dr. SHAW. Well, we expect the laboratory will be ready for occupancy about the beginning of the fiscal year 1962, 1 year hence. The 1961 budget does not provide any funds for starting to assemble a staff and get the program organized so as to start off at a full start on July 1 of the 1962 fiscal year.

There was money provided, for example, for the laboratory built at Tempe, Ariz., ahead of time so we were able to organize and get a staff ready to go, and it does speed up the work.

Mr. WHITTEN. I presume on work of this kind, where you bring to one central location some work, some parts of which you have been carrying on at numerous locations, in all likelihood some of this problem would be met by transfers from other areas to the central locations. Is that likely?

Dr. SHAW. There will be some of that.

Mr. WHITTEN. Is there any reason why efforts could not be made along that line preliminary to the actual opening, on strictly a tentative basis?

Dr. SHAW. It probably could. The one question that I do not have the answer to with regard to it is this: what we really need is the man who is going to direct the laboratory to be on the job ahead of time to get the program organized. Whether it will be somebody transferred from within the organization to head the laboratory,

or someone employed from the outside, is a question I do not have the answer to.

Mr. WHITTEN. Who would make the determination under the general policy in the Department, the Secretary?

Dr. SHAW. In the final analysis the Secretary does have to approve certain of these positions, but the recommendation would come from our Director of our Entomology Research Division, Dr. Knipling.

Mr. WHITTEN. He is a man who can make up his mind, and when he sees something coming up in a year I am sure he would not be the type that needlessly postpones such a decision.

Dr. SHAW. I am sure that he may already have a man in mind, but he has not brought it to my attention.

Mr. WHITTEN. Could we address a formal note in our report urging him to reach some conclusion to set the wheels in motion? He reads our reports, I guess.

Dr. SHAW. Yes. We would be glad to have that done. I am sure that we are going to move in the direction you are indicating and try to get as much underway as we can. How much that will be, how much we can transfer from——

Mr. WHITTEN. I wish, Dr. Shaw, you would give attention to what can be done within present funds by the present employees of the Department to get this laboratory organized prior to its formal opening, and add to that anything this committee might do that would enable you to go even further than that so that we will know just where we stand.

Dr. SHAW. Very well.

CORN AND OTHER GRAIN INSECTS LABORATORIES

Mr. NATCHER. Dr. Byerly, what is the status of the two laboratories for corn and grain in entomology research?

Dr. BYERLY. These two laboratories are on the same time schedule as that for Logan, Utah.

With regard to the one at Tifton, Ga., a title insurance interim binder has been issued covering the 5.255 acres of State-owned land, but it is understood that the title insurance company has raised a question as to the authority of the board of regents of the university system of Georgia to effect the conveyance by donation to the United States.

Dr. G. H. King, director of the State experiment stations, has confirmed the inquiry, and has advised us that special legislation is being prepared for submission to the present session of the State legislature requesting statutory confirmation to authorize the board to effect the conveyance.

With respect to the one at Brookings, S. Dak., the record indicates that the Department's regional attorney at Denver is in the process of negotiating with an accredited title insurance company for the purpose of acquiring title insurance covering 10 acres of land, more or less, of privately owned property, from the State College Development Association of Brookings, S. Dak.

Mr. NATCHER. I wonder if you would discuss at this time the increase of $1,502,000 for research to avoid hazards of chemical residues.

STATUS OF RESEARCH PROGRAM

Dr. BYERLY. Mr. Chairman, prior to such discussion, if I may, I would like to call your attention to the progress notes on farm research on page 37 through item 78 on page 67 of the explanatory notes, and with your permission, I ask that they be inserted in the record.

Mr. NATCHER. The pages indicated will be inserted in the record at this point.

(The pages referred to follow:)

STATUS OF PROGRAM

The Agricultural Research Service carries out the Department's scientific research in the fields of livestock, crops, soil and water conservation, farm economics, agricultural engineering, utilization research and development, and home economics. It conducts both fundamental and applied research in these fields, utilizing physical, biological, and economic sciences.

Research is conducted at the 12,000-acre agricultural research center, Beltsville, Md., and at numerous locations in the States, Puerto Rico, and Virgin Islands, and in foreign countries. A large part of the research is in cooperation with State agricultural experiment stations and other public and private agencies. Research is also conducted under contract with various public and private agencies and institutions.

Programs for control and eradication of plant and animal diseases and pests are conducted to prevent introduction into the United States of pests and diseases of foreign origin, to prevent the spread interstate of those within the country, and to control and eradicate them where found. These programs are conducted at numerous locations in all States, Puerto Rico and Virgin Islands, on farms and ranches, at sea, air, and border ports of entry, in public stockyards and establishments licensed under the Virus-Serum-Toxin Act, etc.

Work of the Service also includes enforcement of the Federal meat inspection laws to assure production of disease-free, clean, and wholesome meat and meat products for both civilian and military use and for foreign commerce. This is accomplished by supervising slaughtering and meat processing operations at meat packing plants, application of controls over imported meats to assure the same protection as in the case of meats produced domestically, and supervision of a system of certifying meats for export to keep foreign markets open to American meats.

As a part of its regular programs, the Agricultural Research Service conducts research and prepares plans for preventing or combating foreign plant and animal diseases which might be intentionally introduced into the United States. Research is also conducted on protective measures for decontamination and utilization of crops, animals, or soils affected by direct radiation or radioactive fallout.

FARM RESEARCH

CURRENT ACTIVITIES

Investigations are conducted on production methods and improvement of field and horticultural crops and of farm livestock, poultry, and domestic fur animals, including means of control of plant and animal pests and diseases. Soil and water conservation research is conducted to develop new and improved soil and crop management practices, improve irrigation and drainage methods, develop information on watershed hydrology, improve fertilizers and liming materials, and determine the relations of soils to plant and animal nutrition. Farm economics studies are made to find profitable adjustments in farming by type and size of farm and their relation to costs, returns, and total farm output of different products. Farm economic research also covers investigations of efficiency in use of labor, equipment, land, water, and new and improved farming techniques, inventory and analysis of land resources, and problems of land valuation, taxation, debt, tenure, and risk. Engineering studies are made to improve the mechanization of crop and livestock production and the harvesting and processing of farm crops, to develop better types of farm structures and new uses for electricity on farms, and to adapt electrical equipment to farm use.

In recent years farm research has been continuously reviewed to emphasize work which would meet problems of agricultural surpluses as well as market demands. This has included breeding and development of the meat-type hog to reduce fats in surplus, production of milk with high solids and lowered fat content, corn with waxy starch for glues and adhesives, corn with high amylose content for industrial use, etc. The program for introduction and development of new crops has also been expanded and basic research essential to agricultural needs has been steadily increased.

SELECTED EXAMPLES OF RECENT PROGRESS

*Animal husbandry research*

1. *Dairy cattle breed associations adopt DHIR production testing plan.*—During 1959, plans were completed and approved for the establishment of a dairy herd improvement registry (DHIR) production record which is essentially an electronically computed DHIA record to be used by all the various dairy cattle breed registry organizations. This development will rapidly lead to a single production record being used by all agencies interested in the improvement of the Nation's dairy cows and represents a tremendous step forward in the development of a completely uniform program across the Nation.

2. *Genetics of feed utilization measured.*—Exploratory research is under way at Beltsville, Md., to determine the value of certain feeding regimes in estimating genetic differences in feed efficiency. The individual differences between dairy cows are being compared for three different groups—group A all being fed at the same level regardless of production, group B fed to minimize differences in body weight changes, and group C fed in accordance with the accepted feeding standards. Preliminary results show that it is practically impossible to minimize body weight changes and group B is being eliminated from the comparison. The average efficiencies of groups A and C were practically the same on the nine cows which have completed one lactation. However, the variation in efficiency among the cows was nearly twice as great in group A fed at the same level as in group C fed according to accepted standards, thus suggesting that the method brings out genetic differences.

3. *Body temperature variation found related to reproductive activity.*—Defects in ovarian activity are important factors in infertility of dairy cattle. While the gross evidences of these defects are easy to detect, minor but still important variations are difficult to detect. Body temperature variations have been shown to be related to ovarian activity in human subjects and the present work was done to determine whether body temperature measurements would be an indicator of ovarian activity in dairy cattle. It was found that the body temperature of dairy cows fluctuates with the estrus cycle, being lowest on the day before heat, high on the day of heat, and low again at the time of ovulation and rather steadily high during the luteal phase of the heat cycle. A marked drop in body temperature in pregnant cows immediately preceding calving was noted. Other experiments have shown that progesterone (the hormone secreted by the corpus luteum in the ovary) maintains the body temperature of cows at a high level. This observation suggests that the fluctuations in temperature noted during the heat cycle or during pregnancy may, therefore, be an indication of varying corpus luteum function. Measurement of body temperature may be a useful means not only of determining the presence or absence of ovulation, but also a means of detecting variations in corpus luteum activity.

4. *Important economic traits of beef cattle appear highly heritable.*—The genetic correlations between growth rates in different periods of an animal's life, together with observations indicating that calves adequately fed tend to grow at a rather constant rate up to 12 to 15 months of age, suggest that tests of ability to gain may be carried out at younger ages than has been usual. Heritability estimates of mothering ability, as measured by weaning weights of calves, ranged from 30 to 80 percent accurate, thus reinforcing previous estimates that selection for this important trait should be effective.

5. *Reproductive performance of beef heifers affected by energy and protein levels of diet.*—An experiment to determine the effect of nutritional level on the reproductive efficiency of beef cattle was started in November 1956 with Angus heifers. The levels of feed intake were (a) full fed for maximum gain, (b) fed for daily gains of about 0.8 pound, and (c) fed merely to maintain weight. Three levels of protein intake were fed within each energy group. At present the calving percentage in the full-fed groups is about 50 percent, in middle groups about 90 percent, and in the low groups about 40 percent. The death

losses of calves at birth in the high energy groups have been excessive. It has been necessary to raise the feed level of the low groups in order for them to exhibit heat. The medium energy adequate protein levels have given optimum reproductive performance.

6. *Microbiology studies throw light on bloat problem.*—Slime production by ruminal bacteria has been advanced as a possible factor in the bloat of cattle and other ruminants. The food fermentation gases are entrapped in the slime and block the normal gas eructation mechanism in the animal. Recent studies with cases of feedlot bloat have shown that an increase in slime-producing organisms occurred with the onset of the bloat symptoms. Legume saponins have been implicated in bloat when animals graze on clover and alfalfa. Ruminal bacteria capable of utilizing a part of the saponin molecule, with resulting production of a slimy residue, have been isolated from bloated steers on clover pastures. More research is necessary before the role legume saponins play in bloat is fully understood. The ruminal microbial population appears to be intimately associated with both feedlot bloat and legume pasture bloat.

7. *Studies of inheritance of tenderness in beef intensified.*—Following determination that tenderness in beef is heritable, research was undertaken to develop a reliable and accurate method for determining tenderness in live animals. A number of chemical and physical measurements are being studied with a view to eventual application of them to the live animal in the taking of small biopsy samples. The collagen and elastin content of beef muscle has been regarded by many as the most important factor responsible for its tenderness. Studies of these connective tissue fractions have been conducted, using the hydroxyproline content as the fraction to determine. Contrary to previous assumptions the study disclosed that variations existed in the hydroxyproline of the collagen fraction. However, the hydroxyproline of the elastin fraction was less variable. There are indications that the determination of hydroxyproline could be used to supplement other methods now used in evaluation of meat quality, particularly tenderness.

Progress has been made in an effort to find an objective and reliable method of determining tenderness in raw meat samples. The principle studied was that of pressure, in which pounds pressure required to exude juice from the sample was regarded as representing tenderness or toughness of the sample. An analysis of the data showed that the relationship between taste panel evaluation of tenderness and that of the press (raw) was high, the correlation coefficient being +0.899. Further refinement is now being made to the pressure chamber in order that small pea-sized biopsy muscle samples can be obtained and tested.

8. *Objective methods studied to evaluate livestock in relation to composition studied.*—Recent attention in research in cooperation with the Agricultural Marketing Service has been given to the possible application of ultrasonics as a rapid and reliable measure of a meat animal's composition. Ultrasonic waves travel at different rates through fat, lean and bone, and the point at which these rates change can be measured on an oscilloscope. An ultrasonic Echoscope having a range of 0.4 megacycles to 10.0 megacycles has been obtained for testing purposes. Preliminary results indicate that the thickness of back fat in hogs can be determined with a relatively high degree of accuracy.

Previous studies have shown that area of eye muscle at the last rib is highly heritable. Therefore, attention is being directed not only to obtaining information on thickness of back fat but thickness of eye muscle. The proper location to obtain the most accurate measurements and the sonic frequency to use are now being studied. Similar studies are being made on cattle and lambs.

9. *Better understanding of heritability of economic characters in swine achieved.*—A study has been made of heritability estimates of economic characteristics in swine based on research by the Regional Swine Breeding Laboratory in cooperation with various State experiment stations and the Department at Beltsville, Md., and Miles City, Mont. For the important economic traits indicated to be rather highly heritable—length of carcass, yield of fat cuts, and back fat thickness—the most probable improvement expected within a single generation from selection was found to be about 61, 60, and 46 percent, respectively. For traits found to be intermediate in heritability—litter size or pig weight at weaning—the expected improvement per generation would be considerably slower or only about 15 and 5 percent, respectively. Experience, as well as theoretical studies, have shown that the latter type traits can most readily be improved by developing inbred lines and combining them into superior hybrids while fatness traits such as measured by back fat thickness are most responsive to mass selection as conventionally practiced by commercial producers.

10. *Pelleted roughages for sheep increase efficiency of feed use.*—Comparisons of pelleted alfalfa hay with chopped hay have shown that sheep fed pelleted hay had heavier body weights and produced heavier fleeces than sheep fed the chopped hay. In both cases the total feed consumed was similar. Pelleting did not significantly increase gross energy or digestibility as a whole. An apparent increase in the digestibility of the fat fraction seemed to be due to errors inherent in this method. The comparisons indicate that the coarse, stemmy portions of roughage, that are normally refused by sheep, are of low nutritive quality and little can be gained from forcing sheep to consume this material. However, pelleting does reduce the wastage of leaves and fine stems which have higher nutritive quality and significantly reduces feed refusal.

11. *New procedure developed for measuring fiber length of wool.*—Wool tops are often downgraded because of variability in fiber length. It is important to determine the source of this variability. In the past it has been necessary to use laborious methods for measuring fiber length of grease wool. To avoid this, a sampling procedure has been developed. It has been found that the fiber length of a fleece of wool can be satisfactorily determined by measuring only 1 to 3 fibers each from each of 25 to 50 locks of wool. This method will greatly facilitate studies on the sources of variability in fiber length of wool top.

12. *Antioxidant with fish waste prevents yellow fat disease in mink.*—In tests at Petersburg, Alaska, the antioxidant, butylated-hydroxy-toluene (BHT), was included in mink diets comparing salmon waste from three different species of salmon. No significant effects on reproduction were obtained, but yellow fat disease was prevented in all groups receiving the BHT in contrast to an incidence of 92 percent on pink salmon waste and 62 percent on red salmon waste when fed without the antioxidant. The disease did not occur in animals fed chum salmon waste.

13. *Fertility and hatchability in turkeys improved.*—Greatly extended breeding seasons in turkeys have resulted from recent lighting studies at Beltsville. It has long been a commercial practice to bring turkeys into fertile egg production by lighting both hens and toms in mid-to-late winter to provide a constant 12- to 14-hour day. Normally such a breeding season was of short duration, ending in early or midsummer. Late summer and fall poults are usually scarce and expensive, thus making year-round turkey production uneconomic. In the recent experiment the length of the light day was gradually increased from 12 hours to 15 hours over an 18-week period. Effective breeding seasons of about 24 weeks resulted in contrast to the usual maximum of 16 weeks or less. By extending the breeding season into the late summer and fall, poult costs can be materially reduced.

14. *Combining high egg production with high egg quality.*—Breeding studies at Beltsville are showing progress in combining high quality with high egg production. Past studies have indicated that egg number and size were negatively correlated genetically with good interior quality and good shell quality. Such findings have discouraged breeders from improving the market quality of their product. Studies are demonstrating that the possible antagonism between desirable traits can be overcome to a large degree. The Beltsville studies indicate that in only 4 generations, egg production has been increased from an average rate of about 220 eggs per year to about 253, and egg weight has increased from 54.2 grams to 55.4. During this period the very high albumen quality and shell quality already present in the strain have not been lowered, and advancing age in the Beltsville strains has caused little lowering of albumen quality as found with most strains.

15. *Egg laying in the hen controlled by the brain.*—A specific part of the hypothalamus of the chicken brain has been shown to control release of the hormone or hormones responsible for ovulation. The same center appears to exert some influence on maturing ovarian follicles as well as on the timing of egg laying. Ovulations artificially induced by progesterone likewise require the same center to be functional. These results have been obtained by making discrete electrolytic lesions in specific parts of the brain. The duration of activity of this center was found to be about 2 hours, terminating 5 to 6 hours before actual ovulation. Previous work at Beltsville has established the role of hormones in ovulation and the timing sequence has been worked out. The additional knowledge gained of the brain's role in the series of events leading up to the production of an egg seems to have provided a complete picture of the processes involved. Improvement in efficiency of egg production through

breeding and control of environmental factors such as light can be approached more directly and effectively as a result of these studies.

*Animal disease and parasite research*

16. *Viruses of foreign diseases studied.*—Study has been made of the persistence of foot-and-mouth disease virus in carcasses and meat from infected animals handled in accordance with standard meat processing procedures. Samples of meat have been found to contain infective virus in lymph glands stored as long as 50 days and in bone marrow as long as 60 days. As a result of these findings, import regulations with respect to cured meats have been tightened for further protection of the livestock industry.

Methods have been developed for propagation of African swine fever virus in tissue culture, enabling determination of the concentration of virus. These methods previously have been unsuccessful for propagation of hog cholera virus. Since African swine fever is clinically indistinguishable from hog cholera, this phenomenon may prove useful in differentiating the two diseases.

17. *Gains made in research on shipping fever of cattle.*—A hemagglutinating virus has been isolated from cases of this disease and classified as para-influenza III. It produces clinical symptoms of short duration and may be only one of multiple agents in the shipping fever complex. Sufficient time has not elapsed to determine the prevalence of the infection in this country, but it is believed to be a breakthrough on better understanding of the disease complex.

18. *Vaccine found for prevention of infectious bovine rhinotracheitis.*—The virus causing this disease, a disease which is widespread in a number of States, has been isolated. It has been determined that so-called red nose, upper respiratory disease of cattle, or an undiagnosed influenzalike disease of cattle are the same disease as bovine rhinotracheitis. The preventive vaccine developed has proved very satisfactory.

19. *Amount of radioactive material in milk influenced by nonradioactive calcium in diet of cattle and goats.*—The amount of radioactive materials in the form of strontium 89 that must be ingested by cattle and goats on forage to cause such materials to appear in the milk is influenced by the nonradioactive calcium in the diet. The lactating cow on a normal calcium diet put 0.08 percent of the daily ingested strontium 89 into each quart of milk and the goat 1.4 percent. On a low calcium diet there was an increase of strontium 89 appearing in the milk and on a higher calcium diet there was a decrease.

20. *Low level doses of ET–57 and Dowco 109 given internally appear to control cattle grubs.*—Thirty-four animals treated (July and August 1958) with ET–57 at the rate of 5 mg./kg. per day (milligrams per kilogram of weight per day) for 14 days and Dowco 109 at the rate of 3 mg./kg. per day for 14 days were examined for cattle grubs in January, February, and March 1959. A total of 13 grubs was extracted from the principals (all from the animals treated with ET–57), while a total of 897 grubs was extracted from 38 control animals, all of which were infested. No grubs were found in the animals treated with Dowco 109. This finding is significant because it points the way toward reducing amounts of pesticides used for control, thus reducing residue hazards.

21. *Storage of hay before feeding provides control of beef tapeworm.*—Hay contaminated with eggs and ripe segments of the beef tapeworm (*Taenia saginata*) was found to be almost completely safe for feeding to cattle after it was stored in a barn for a little more than 3 weeks. The beef tapeworm, which is transmissible to man, is of importance in the North Central States and in the South and Southwest. Numerous outbreaks have occurred recently.

22. *Ability of intestinal threadworm to penetrate unbroken skin of lambs demonstrated.*—Infective larvae of this worm of domestic ruminants (*Strongyloides papillosus*) penetrated the skin of lambs within a few minutes. However, some larvae remained on the skin for as long as 48 hours. This intestinal threadworm is widespread and of special importance in feedlot lambs in warm, moist areas. It causes diarrhea and general debility.

23. *Management of swine studied to minimize losses from large roundworms.*—This worm causes considerable damage to young hogs. Cooperative work with the University of Nebraska shows that the number of large roundworms establishing themselves in pigs is influenced by the diet fed experimentally infected animals.

24. *Development of method for early diagnosis of swine kidney worms indicated.*—Swine experimentally infected with kidney worms have been shown to produce antibodies which may be detected in the serum as early as the 4th week after infection. Agar precipitation tests have indicated that at least six anti-

bodies are present from the 4th to the 13th week after infection. These findings appear to be a breakthrough in early diagnosis of kidney worms which are a problem in the South. While there may be no visible effects in swine infected with these worms, they result in considerable losses to farmers through condemnation of the more expensive cuts of meat.

25. *Chemicals tested for control of swine helminths.*—Several agricultural chemicals have been found to be lethal to the free-living stages of swine helminths in soil in low concentrations under laboratory conditions. Eggs and larvae of the nodular worm and the red stomach worm were all killed by calcium borate, phenothiazine, dieldrin, pentachlorophenol, borax, calcium hydroxide, and urea at the concentrations of 1 to 500 parts by weight or less.

26. *Inactivated virus vaccine for Newcastle disease developed.*—A vaccine which compares favorably in immunity conferred with modified live virus vaccines have been developed following exhaustive studies over a period of 10 years. Each of five factors shown to influence the potency of the vaccine was investigated. The factors studied were antigenicity of the virus strains, amount of virus used in the vaccine dose, the inactivating agent or method of virus inactivation, the vaccine preservative material, and the role of adjuvants in immunogenicity. If the killed vaccines are applied to field control the results of this research should minimize field outbreaks by eliminating virus dissemination through live virus vaccines and pave the way for eventual eradication of the disease.

27. *Effective fowl chlorea vaccine developed.*—Studies at Beltsville show that formalin or ethylene oxide-killed *Pasteurella multodida* incorporated in an excipient is a safe and highly effective vaccine for the prevention of fowl cholera. The protection afforded persists for at least 1 year.

28. *Cultivation of soil of poultry ranges aids control of blackhead.*—Blackhead is difficult to control because the parasites are carried from bird to bird by eggs of the cecal worm, another parasite of poultry. Research shows that a single plowing of blackhead-contaminated ranges reduced blackhead in birds kept thereon by about 80 percent.

29. *Progress made in research on chronic respiratory disease in poultry.*—Cooperative research with 11 State experiment stations has resulted in development of a rapid, whole blood plate antigen and a tube antigen for diagnosis of air sac infection in chickens and infectious sinusitis in turkeys. As a result, several States have initiated field trials for the elimination of infectious sinusitis in breeder flocks supplying selected hatcheries.

Cultural and animal inoculation procedures have been developed to the point that pathogenic and nonpathogenic strains of pleuropneumonia-like organisms, the causative agent of chronic respiratory disease in chickens and infectious sinusitis in turkeys, can be differentiated. At least five nonpathogenic strains of different serotypes and one pathogenic strain have been differentiated.

The use of various antibiotics, when given at 200–300 grams per ton of feed in the treatment and prevention of air sac infection in poultry, has not been entirely successful.

30. *Simplified diagnostic test developed for ornithosis in poultry.*—In cooperative research with five State experiment stations, a simplified direct-complement-fixation test has been developed and standardized for the diagnosis of ornithosis in turkeys. By the use of this procedure broad surveys have revealed a high incidence of ornithosis infection in turkey flocks in States surveyed. Wild birds surveyed have shown that waterfowl, such as gulls, are carriers of the ornithosis agent. Sparrows have also been found to be infected.

A group antigen, which is nonpathogenic for humans, has been developed for the diagnosis of ornithosis in turkeys and is in the process of standardization in the cooperating laboratories. This antigen is derived from a member of the *lympho granuloma venerum* group.

Proper treatment of infected turkey flocks with the antibiotic aureomycin, results in the dissipation of the infection from the flock.

*Crops research*

31. *Isolation of pigment that controls response of plants to light.*—A significant step toward a more complete and basic understanding of the physiology of plant growth and development has been made in isolating and partially purifying the pigment responsible for controlling plant response to light. Previously, the only way of studying the red and far-red photoreaction in plants was through biological means, such as flowering, stem elongation, or seed germination. Now it will be possible to study the photoreversible pigment by instrumentation which

greatly facilitates further research in this field. This finding is believed to be the most important discovery in plant physiology since the role of auxin was discovered in the early thirties.

32. *Advance made in basic investigations of plant reaction to systemic insecticides.*—The discovery that systemic insecticides are not retranslocated in the cotton plant has provided new impetus and objectives to the basic research on development of longer lasting systemic insecticides. It was previously considered that failure to obtain late-season control of insects with such treated plants was due to a dilution effect. However, recent basic studies show that the cotton plant may efficiently absorb systemic insecticides throughout its growth period but the chemical is stored in the tissues present at time of absorption and is not retranslocated to new tissues. Researchers now realize that efficient, full-season insect control with such chemicals can be accomplished either through improvement of methods for providing a continuous supply of the chemical throughout the growth period, or by development of effective systemic chemicals which can be retranslocated from points of storage to newer tissues as the plant continues to grow. Consequently, there now appears to be an effective approach to the control of late season insects through the proper application of systemic insecticides.

33. *New crop varieties recently released include.*—Cody, a new alfalfa variety, resistant to the spotted alfalfa aphid, has been released by the Department and the Kansas Experiment Station. It was developed by screening more than a quarter of a million plants of the variety Buffalo for resistance to the aphid, and progeny testing the selected plants. Preliminary results indicate that Cody will be adapted to the Central Plains region and east.

Six new superior soybean varieties for the North Central and Southern States have been developed to reduce hazards of production of soybeans. Three of the varieties—Hill, Hood, and Scott—are resistant to serious leaf diseases that normally reduce soybean yields in Mississippi, southern Missouri, North Carolina, Virginia, and Delaware. Lindarin, a new variety for northern Indiana and Illinois, produces seed of better quality than present varieties and has more resistance to downy mildew, Phytophthora root-rot and stem-canker diseases. Ford is a new, high-yielding variety for central Iowa, southern South Dakota, and northern Nebraska. Shelby is superior to present varieties in areas of central Indiana, Illinois, and northern Missouri.

Gila is a new high-yielding, safflower variety, resistant to root-rot, developed by the Department and the Arizona Experiment Station. Extensive tests indicate that it yields 15 to 25 percent more than N10, the best commercial variety; has a satisfactory oil content (35 to 38 percent) and acceptable bushel weight (45 pounds). Being resistant to Phytophthora root-rot, it is the first variety suitable for growing on irrigated lands. Gila was planted on 600 acres in 1959 and all of the seed produced has been reserved for planting in 1960. The acreage planted to safflower in the United States increased from 100,000 acres in 1957 to approximately 250,000 acres in 1959.

Blanco, a new lupine for the lower South is a white-seeded, white-flowered, sweet blue lupine developed in cooperation with the Georgia Experiment Station. It appears to be the answer for farmers of the lower Southeast who want a sweet blue lupine for winter grazing, soil improvement, and for seed production; one that is distinguishable from the bitter blue varieties. Blanco is distinguishable from other blue lupines by flower color, seed color, and by the absence of purple coloring in the stems, petioles, and leaves.

A rapid growing, high yielding sansevieria hybrid has produced remarkable yields on the organic soils at Belle Glade, Fla., and greatly enhances the prospects for sansevieria as a commercial crop in Florida. With its rapid growth and annual harvest, the leaves do not need to be subjected to the winter cold.

Four improved varieties of lettuce for Pacific Coast States, developed by the Department in cooperation with the California Experiment Station, are Golden State C, Golden State D, Climax, and Vanguard. They all embody improvements in tipburn resistance, eating quality, and market qualities over varieties currently grown in several districts in the Pacific Coast States. The variety Vanguard is of special interest because it was developed after almost 30 years from a hybrid between cultivated lettuce (*Lactuca sativa*) and a wild lettuce (*Lactuca virosa*). It derived an unusually high resistance to tipburn and other distinctive qualities from the wild parent.

Valverde, a new mildew-resistant lettuce for the South is highly resistant to downy mildew, a major limiting factor in winter lettuce culture in the Lower Rio Grande Valley. It was developed by the Department and the Texas Experiment

Station. It is attractive, productive, and has good eating quality, good market properties, and produces good crops under conditions of mildew infection that may make other varieties completely worthless for market.

Two new tomato varieties, Pearson VF–6 and VF–11, introduced by the Department and the California Experiment Station in late 1958 for use in the West, are verticillium- and fusarium-resistant.

Navajo, a new potato introduced for the Rocky Mountain area, is a smooth, white-skinned oval-to-round variety developed by the Department and the Colorado Experiment Station. It is resistant to scab and early blight, is high yielding, and of high quality. It is satisfactory for making chips, and stores well. Navajo produces a higher percentage of U.S. No. 1 potatoes and of total solids than does Katahdin, under Colorado conditions.

Two new pecan varieties, Choctaw and Wichita, are the result of many years of breeding in which superior nut quality, size, and productiveness have been combined into single varieties. Much of the pecan production in the United States is still from native trees. These superior varieties should do much to increase farm value as well as market value.

34. *Ozone studied as a cause of weather fleck of tobacco.*—The cause of weather fleck of tobacco has baffled research workers. Weather fleck, sometimes called leaf spot, has caused annual losses in recent years in the Connecticut Valley and the lower Ontario area of Canada estimated in millions of dollars. In 1958, the first evidence was obtained that atmospheric ozone was the cause of weather fleck and research data are accumulating showing that this is the primary cause.

Ozone is usually detected in harmless trace quantities. It is formed by action of sunlight on certain air pollutants, notably products of combustion of fuels, especially petroleum. Under special weather conditions, ozone and possibly other compounds may reach phytotoxic concentrations in air near the ground. Excellent correlation was obtained between outbreaks of weather fleck and high values for ozone. In tests conducted in cooperation with the University of California, leaf lesions, which were indistinguishable from weather fleck, were produced by action of ozone on tobacco plants in special chambers. This information will be most helful in combating this serious problem.

35. *Breeding of high amylose corn progresses.*—A new type of corn which has approximately 80 percent amylose starch has been developed in the cooperative research program at the Missouri Experiment Station. Ordinary cornstarch contains about 27 percent amylose (long unbranched molecules). Starch chemists have indicated that if high amylose types, containing 80 percent or higher, could be developed, there would be many new industrial outlets for such cornstarch. Previous strains had an amylose content as high as 50 to 60 percent, but this was not enough for direct commercial use. The high amylose characteristic is being introduced into agronomically acceptable hybrids. Research is being continued to develop still higher amylose percentages.

36. *Grasses used in range seeding differ in rate of germination.*—In studies at Ephraim, Utah, some of the uncertainties involved in fall seeding of mountain rangelands have been explained by differential germination of grasses at low temperatures. At a constant temperature of 33°F. crested wheatgrass germinated in 18 days, smooth brome in 21, intermediate wheatgrass in 33, tall outgrass in 40, native mountain brome in 45, and slender wheatgrass and red fescue in 63 days. When seeds were planted in the ground at 5,500, 7,200 and 8,850 feet altitude on October 31 and November 1 and examined December 2 and February 28, only crested wheat showed satisfactory germination at the low temperatures occurring at these altitudes.

37. *Improved cultural practices control stem rot of peanuts.*—New and practical measures for controlling the destructive stem rot diseases of peanuts have been developed through cooperative research in Georgia and Virginia. This disease, also known as southern blight, has caused $10 to $20 million losses annually to peanut growers in the Southern States. The new control measures consist of (1) plowing fields so that all surface debris is covered with clean soil to a depth of 3 to 4 inches; (2) planting on flat or slightly raised beds; and (3) cultivating so that no soil is thrown against the stems of the plants during the growing season. These practices have effectively decreased the incidence and severity of the stem rot disease and in Georgia in 1956 resulted in 32 percent increase in the value of Spanish peanuts. In Virginia experiments in 1957, use of the practices resulted in an 80 percent yield increase of Spanish and 78 percent yield increase of Virginia bunch peanuts.

38. *Foreign plant introductions make valuable contribution to U.S. agricultural crops.*—More than 10,000 lots of plant materials were introduced during the

fiscal year 1959. Special field explorations conducted in Belgian Congo and Angola, the Dinaric Alps of Greece and Yugoslavia, Near East and Mediterranean countries, Brazil and the southwestern United States and nearby Mexico, resulted in locating and bringing to this country germ plasm collections of: 3,200 field crops; 1,600 fruits and vegetables; 1,800 oilseeds; and 3,300 ornamental and special crops.

Because of the time required for breeding improved varieties, the value of new introductions is frequently not realized for many years. Several recent variety developments, partially attributable to the plant introduction program, are:

Lettuce: Two garden lettuce varieties introduced in 1936 from Czechoslovakia and Turkey, contributed to a new red-pigmented leaf lettuce variety, Ruby. It is a large, midseason, savoyed, slow-bolting lettuce of excellent quality and wide adaptability.

Peas: An introduction from Peru in 1949 of a powdery mildew-resistant, nonedible pea, made possible the development of a new edible podded variety, Manoa Sugar, which is well-adapted to the warm, lowland climate of Hawaii where mildew has been a limiting factor in pea production.

Tomatoes: A wild green-fruited tomato introduced from Peru was used in Indiana to produce a new variety Caro-Red which has 10 times the concentration of provitamin A that the standard variety Rutgers has.

Grapes: Twelve European developed, mildew-resistant American-European grape hybrids, from among a large number of introductions, are currently being recommended in Illinois.

Chestnuts: Progenies from introduction of Chinese chestnuts, originally introduced to replace the blighted American chestnut forests as a source of tannin, have yielded a selection that produced seedlings with excellent characteristics as timber for the Eastern United States.

Tall wheatgrass: An introduction from Russia in 1932 has provided this country with the major germ plasm base for presently grown tall wheatgrass. One of the selections from this introduction has recently been named Alkar and has been released for farm and range use.

Chinese holly: Introduced seeds of an ornamental holly from China in 1920 provided this country with a new globe-shaped, dark green, and glossy-leafed ornamental plant that bears bright red berries. Tests indicated wide acceptability in the South for hedge and specimen plantings.

New crops resulting from plant introductions include:

Guar: This crop has become firmly established as a new dryland farming crop in the adaptable areas of Texas and Oklahoma. It is grown on more than 100,000 acres. The Texsel and Groehler varieties are selections from a single introduction of seed from India in 1936. The vegetable gum, mannogalactan, milled from the seed, is used in paper and textile industries for waterproofing of dynamite, preparation of oil drillers mud, concentration of ore in the flotation process and the preparation of cheese spreads, frozen dessert mixes and cosmetics.

Safflower: This oilseed yields a high-quality drying oil for special purposes and has promise as a food oil. Safflower was grown on 200,000 acres in the United States in 1959. Its area of adaptability is somewhat limited, but expanded production will be possible through the breeding of new varieties with disease resistance and higher oil content.

39. *U.S. National Arboretum.*—Contractual work supervised by the Bureau of Public Roads has been completed. Work included construction and surfacing of the 9½-mile road system, three stream culverts, eight parking lots and pullouts, necessary drainage, much of the side grading and seeding, deepening of two ponds to yield backfill, and a section of stream bank protection. In addition, much roadside and pond grading and seeding has been done by the arboretum labor force.

The third building in the shops area has been completed and occupied and the fourth is under construction. A greenhouse service building has been completed, also two open-sided public rain shelters, one in the azalea area and one facing Anacostia River in dogwood planting.

First-stage design and construction plans, with model, for a headquarters-laboratory building have been submitted to, and approved by, the District of Columbia Commission of Fine Arts.

Of the 816 plant accessions recorded during the past year, two-thirds were seeds, cuttings or scions, and one-third was young plants that required further growth in greenhouses or lath house. Most notable among these accessions were gifts of 743 fern clumps representing 33 species native to the east coast,

10,000 narcissus bulbs, 24 species of plantain lilies, cuttings and scions of 75 different conifer cultivars and many additional viburnums. New planting projects have included the addition of several hundred rhododendrons in the Mount Hamilton area, the development of fern valley with active assistance of the League of National Capital Garden Clubs, expansion of other plantings, particularly involving hollies, magnolias and dogwoods; and 2,000 feet of access trails have been constructed. The distribution of plants and seeds to numerous institutes included 1,300 azalea plants requested by the Royal Botanic Garden, Edinburg.

The herbarium of 400,000 specimens formerly located at Beltsville has been moved to temporary quarters in the service area of the arboretum. Additions to these collections have included the cataloging and incorporation of 11,000 sheets of the recently donated Ball willow collection.

Research continues in the classification of native hollies; in breeding programs in holly, rhododendron and magnolia; and in a newly instituted project involving viburnum. Two holly selections are in process of introduction.

*Entomology research*

40. *Insect pathogen controls tobacco hornworms and cabbage caterpillars.*—Sprays containing spores of a bacterium known as *Bacillus thuringiensis* gave excellent control of tobacco hornworms on tobacco in cooperative experiments in several eastern States. This pathogen gave as good control as endrin, the most effective insecticide in use against this insect. Although endrin controls tobacco budworms as well as hornworms, it leaves an undesirable insecticide residue on the harvested crop. Spray applications of the pathogen have shown promise in the control of cabbage caterpillars and fall armyworms on cabbage, but not for the control of the tobacco budworm. The use of biological and chemical control methods for certain insects has the advantage that it reduces or eliminates insecticide residue hazards.

41. *Systemic insecticides control cattle grub.*—Two new systemic insecticides, Co-Ral and ronnel, are now available to livestock growers for control of the cattle grub, a pest that causes annual losses of $100 million. Co-Ral is effective when applied dermally to cattle, whereas ronnel must be given orally as a drench or bolus. Extensive field tests and large-scale demonstrations have provided 90 to 100 percent control of grubs when recommended dosages were applied after the cattle grub fly season ended and before the grubs appeared in the backs of cattle. Livestock men will profit due to increased weight gains and undamaged hides. Meat-packing companies estimate an average saving of $7.50 per animal in trim loss alone where grubs have been controlled.

42. *Artificial diet developed to rear boll weevils.*—The culture of boll weevils in sufficient quantities for laboratory testing has become a practical reality through the development of a synthetic diet that does not require aseptic techniques. Heretofore, boll weevils could be reared only when cotton plants or parts were available. Cotton was necessary for both nutrition and as a stimulus to egg-laying. A year-round supply of boll weevils made possible by this diet greatly accelerates the testing of both conventional and systemic insecticides, the study of resistance to insecticides, nutritional and physiological studies, and the development of weevil-resistant cotton. A special feature of the diet which has been developed is the use of an acetone powder of squares or bolls as the protein source. Contamination by microbes is prevented by mold inhibitors. This diet is an outgrowth of earlier pioneering research on insect diets with the pink bollworm and boll weevil in which aseptic techniques were used.

43. *Progress made in biological control of weeds.*—Exhaustive feeding tests conducted in Europe with the larvae of a moth species—principle insect enemy of tansy ragwort—showed that it will not feed on any other plants. The State of California and the Federal Interdepartmental Weed Committee have approved the introduction and release of this insect in California where tansy ragwort is a serious range pest. Attempts to colonize the moth are now underway in California. Approval has also been obtained to introduce a weevil from France for control of puncture vine—another serious pest of agricultural lands in California. The weevil destroys the seed pods of the weed and can live only on this plant.

44. *Improved powder perfected for control of louse vectors of typhus.*—A new powder containing 1-percent malathion has been perfected for use in controlling human lice, the vectors of typhus fever. This powder is highly effective against lice that are resistant to the DDT and lindane formulations now in use. Availability of the malathion powder insures our Armed Forces of an effective

means of combating lice in foreign areas where typhus is endemic. The World Health Organization plans to provide malathion power to those areas where typhus control programs are underway.

45. *Virus disease of citrus red mite discovered.*—A virus disease of the citrus red mite found in California is being studied to determine its possible usefulness as a natural control of this important citrus pest. The disease has been transmitted repeatedly under experimental conditions from sick and dead diseased mites to healthy mites. All stages of the mite, except the egg, appear to be susceptible. Water suspensions of the disease organism have retained infectiveness for several weeks. A laboratory unit has been established to produce material for field tests to evaluate the organism in controlling insecticide-resistant mites on citrus and other fruit trees. This appears to be the first record of a virus disease of mites.

46. *Parasites introduced to control alfalfa weevil and Rhodes-grass scale.*—Four species of parasites imported from France and a fifth species obtained from California have been released in alfalfa fields in New Jersey to control the alfalfa weevil. Previous attempts to establish one of the French species in the United States failed because the adult females reabsorbed their eggs during ship and rail transit and could not be induced to resume egg production. Air transit appears to have circumvented the problem and laboratory reproduction of this species has been achieved. The species obtained from California was recovered in considerable numbers from one field 2 months after release.

A parasite known to be an effective enemy of Rhodes-grass scale in India has been introduced and released in Florida and Texas to combat this pest of range grasses. There are indications that it will persist and become established in Texas. It seems to be adapted to arid conditions characteristic of regions in Texas where a previously introdced parasite has not provided effective control.

47. *Advance made in insecticidal control of the sugarcane borer.*—As a result of cooperative tests by the Department and the Louisiana Experiment Station, a granular formulation of endrin is now recommended and being used by growers on a large scale for control of the sugarcane borer. Results of 3 years' field tests show that four applications of 2-percent endrin granules applied at 14-day intervals give superior control over that obtained with other insecticides. It is anticipated that the use of endrin will aid in reducing the loss caused by the sugarcane borer amounting to approximately $7 million a year in Louisiana.

48. *Safer insecticides and synthetic lures for gypsy moth.*—An intensive testing program has been carried out to evaluate a number of new insecticides to control the gypsy moth. Several compounds showed higher effectiveness against the moth and greater freedom from residue hazards and safety to wildlife than did DDT, which has been used in the control programs. In recent field tests with Sevin and Bayer 22,408 there was no observable effect on wildlife. Two other promising candidate insecticides are Phosphamidon and Dibrom.

Laboratory and field tests of nearly 2,000 synthetic organic compounds and 150 botanical derivatives as lures for the male gypsy moth have revealed several synthetic materials that show appreciable attractiveness. To operate the scouting traps that are essential to the control program, it is now necessary to collect and rear large numbers of female gypsy moths and extract the extremely minute amounts of the natural sex attractant secreted by them. This is a difficult and costly process. Availability of a synthetic lure would permit an important saving in money and manpower.

*Soil and water conservation research*

49. *Optimum location and strength of streambank revetment determined.*—Stream observations on Buffalo Creek in New York State have resulted in defining an orderly pattern for determining the placement of revetment for streambank erosion control. Application of the findings requires knowledge of (1) the average width of the channel, (2) the region of deposition in the stream bend, and (3) the stream bend radius. With such information the area of most potential damage can be predicted and heavier revetment utilized there, with less expensive material utilized in the remaining area of protection. This new concept should result in more economical streambank stabilization.

50. *Evaporation control and rainfall concentration in crops boosts water use efficiency.*—Results from field experiments at eight Great Plains locations in 1958 indicate great potential in evaporation control in growing crops. In this research, thin plastic film was applied to the soil surface as a partial or complete covering. Water use by the crop, yield of the crop, and other information was compared with that of noncovered areas. Where moisture was not excessively limiting to yield, water use by sorghum and corn ranged from 6 to

about 12 inches where complete plastic cover was used. Without plastic cover, or where only partial cover was used, water use generally ran from 10 to about 20 inches for the season. Yields were generally as high or higher where either partial or complete plastic cover was used. This means that production per inch of water consumed (water use efficiency) was improved.

At North Platte, Nebr., sorghum yields were 65 bushels per acre without plastic cover, 75 bushels with partial cover, and 78 bushels with complete cover. Corresponding water use for the season was 14.4 inches without cover, 15.1 inches with partial cover, and 5.3 inches with complete cover. In terms of grain produced per inch of water, 14.7 bushels per inch was produced with complete cover whereas only 4.5 bushels were produced without cover. Similar results were obtained at the other locations. Peak water use rates were reduced, rate of development of the crop hastened, and weeds controlled where plastic was used.

These studies indicate the great magnitude of evaporation in the growing crop and the potential of evaporation reduction in improved water use efficiency. Even partial evaporation control in the growing crop by this or similar procedures would permit elimination of the summer fallow practice throughout many areas where it is presently required. Such a practice would also greatly reduce water consumption in irrigated crops.

51. *Leaching requirement theory tested for field use.*—The accumulation of excess salts in irrigated soils is a problem because salts are present in varying amounts in all irrigation waters. Leaching beyond the root zone must take place if a permanent irrigation agriculture is to be maintained. A knowledge of the quantity of water needed to accomplish the leaching is important. Recent studies provide support for the theory which defines "leaching requirement" as the fraction of the irrigation water applied that must pass beyond the root zone in order to maintain a given level of salinity in the root zone of the soil. Experimental data obtained from lysimeter studies agree closely with those predicted from the theory. Thus, it is concluded that the "leaching requirement" concept may be used with confidence in determining the amount of irrigation water required to maintain a given level of salinity in the soil root zone.

52. *Rainfall in southeast has highest erosion-producing potential.*—In order to obtain the relative erosion producing potential of rainfall in various sections of the country, an erosion index was developed. This index is obtained by multiplying the rainfall energy by the maximum 30-minute rainfall intensity. Data computed over a period of 22 years from 78 stations in the Eastern United States show that the erosion-producing potential of rainfall varies according to definite patterns. In general, the values range from the mid-eighties in the Northeast to about twice that magnitude in the Corn Belt and from 300 to 400 in the Southeast. Thus, characteristics of the rainfall itself probably account in large part for the serious soil erosion encountered in the Southeast. The computed rainfall data will be most useful in guiding erosion control programs.

53. *Salts damage sensitive crops with sprinkler irrigation.*—Study of the effects of sprinkler irrigation on five fruit tree species has been completed at the U.S. Salinity Laboratory at Riverside, Calif. Foliar absorption of chloride and sodium was most rapid in apricot and almond, intermediate in plum and orange, and very slow in avocado. Evening applications of sodium chloride resulted in lower accumulation and less leaf injury than midday applications. Leaf symptoms developed when sodium or chloride concentrations in the leaves were approximately 10–30 (milliequivalent) per 100-gram dry weight. Plum was injured by the lowest concentrations. Dormant twigs and bark of almond and orange contained only small amounts of toxic ions indicating little carryover between growing seasons. A study on foliar absorption of salt by strawberries has been initiated because of the recent emphasis on sprinkler irrigation of this salt-sensitive crop.

54. *Water losses greatly affected by level of water table.*—The level at which water tables near the ground surface are maintained has a significant bearing upon the amount of water removed by evaporation and transpiration. On the Davie Fine Sands of Florida in 1955, 8.7 inches more water were extracted in 200 days by a crop of green peppers over a 12-inch water table than was extracted by the same weight of crop over a 24-inch water table. If the soil is left bare of vegetation, a 12-inch water table loses approximately 42 inches per year to evaporation as compared to no losses from a 36-inch water table. Comparisons with findings in Texas indicate that the losses from high water tables are considerably greater in less humid areas.

Such data are directly applicable to the design of release rates for reservoirs and have already been put to use in the design of canals and pumping stations in drainage districts. If the release rate or the seepage from a reservoir is great enough to sustain a water table near the ground surface, significant reductions in water yield may occur.

55. *Orientation planting of corn saves moisture.*—Orientation planting—placing corn kernels with points down and flat sides with the row—looks promising as a means of reducing soil moisture loss through evaporation. Studies in Illinois showed that corn's natural growth pattern brings leaves out almost at right angles to the flat sides of the corn kernel. Orienting the seeds so that the leaves grow at right angles to the row direction resulted in up to 90 percent less sunlight striking the ground. This extra shading reduced evaporation from the soil surface. Also, the less jagged geometry of the leaves between the rows reduced wind turbulence which further helped conserve moisture. The method appears to have considerable practical importance in moisture conservation.

56. *New type of nutrient imbalance discovered.*—In cooperation with the New Hampshire Experiment Station, a study was made of an abnormality observed when cows and calves fed timothy hay produced on intensively fertilized soils exhibited slow rate of growth and weak bone structure. The same symptoms were observed with experimental rabbits fed this hay under controlled laboratory conditions. A basal diet (containing 50 percent of timothy) for rabbits, supplemented with calcium, potassium, magnesium, and phosphorous salts in all possible combinations, was studied subsequently. The findings demonstrated that, with a timothy-hay type ration which does not support growth, normal hemoglobin or bone ash levels could be rendered nutritionally adequate when supplemented with a salt of sodium, potassium, calcium, or magnesium carrying an anion capable of being oxidized to carbon dioxide and water by the animal body. It was concluded that under the dietary condition of this experiment the rabbit suffers a physiological cation-anion imbalance or an acidosis, and that this condition is interrelated with the mineral metabolism of the animal. This mineral imbalance induces calcium and potassium deficiencies in the presence of apparently adequate dietary levels of these elements.

57. *New method saves time and expense in fertilizer analysis.*—In cooperation with the Association of Official Agricultural Chemists, a method has been developed which permits determination of available phosphorus directly in the combined water and citrate extracts of a sample. The new method eliminates the necessity for separate determinations of total phosphorus and citrate-insoluble phosphorus, thus effecting an economy of some 50 percent in the analyst's time. It also greatly reduces operating costs in the more than 150 State, industry, and commercial laboratories concerned with quality control of the 17 million tons of phosphate fertilizers annually consumed in this country.

58. *Improved fertilizer mixtures contain higher proportions of plant nutrients.*—The total concentration of primary plant nutrients (N, $P_2O_5$, $K_2O$) in the domestic consumption of mixed fertilizers rose steadily from 21.9 percent in 1948 to 30.3 percent in 1958, an increase of 38 percent. The resulting saving in transportation, handling, and processing expenses per unit of nutrients has been a major factor in maintaining the cost of fertilizers to the American farmer at a lower level relative to that of other commodities purchased for farm production. Research in the Department, which has made and is making important contributions to higher analysis mixtures, include the development of fertilizer materials having superior physical and chemical properties; improvement in the handling, storage, and drilling characteristics of the mixtures through granulation and proper selection of the ingredients; reduction in use of inert filler; and formulation of products better adapted to meet the nutrient needs of specific crops.

*Farm economics research*

59. *Net farm incomes generally higher in 1958.*—Net farm incomes were higher in 1958 than in 1957 on 29 of the 32 types of commercial farms for which annual estimates of costs and returns are now available (table 1). Production was higher in 1958 on 24 types of farms, and prices received were higher on 26. Much of the expansion in farm output was in "basic" commodities, prices of which were already at or near 1958 support levels. A substantial increase in prices of meat animals was also an important factor. On cattle ranches, for example, prices received averaged nearly 30 percent higher in 1958 than in 1957.

Prices paid for goods and services used in production were higher on most types of farm in 1958 than in 1957 but operating expenses per unit of production

were generally lower. As a rule, increases in prices paid for production goods and services were more than offset by increases in productivity. Generally favorable weather was undoubtedly responsible for much of the increase in farm output and productivity.

Preliminary estimates of net returns for 1959 for six of the farm types in widely separated areas show lower net returns on five types and higher net returns on one type of farm. The returns ranged from a net loss on poultry (egg producing) farms in New Jersey to an increase in returns of approximately 9 percent above 1958 on cattle ranches in the intermountain region. Total production expenses in 1959 were higher on each of these six important types of farms. Prices received for products were mixed, ranging from 15 percent lower on poultry farms to 5 percent higher on the intermountain cattle ranches. Net farm production was about 15 percent lower on winter wheat farms and slightly lower on central Northeast dairy farms. It was above 1958 on the other four types of farms.

60. *New record farm output achieved in 1959.*—Total farm output for the United States in 1959 was 25 percent above the 1947–49 average and 1 percent above the previous record set in 1958. This record achievement resulted from the combination of an unprecedentedly large production of livestock and a record-equaling crop output in 1959 (fig. 1).

Total livestock production in 1959 continued the upward trend that started in 1948. Production was over 2 percent larger than in 1958 and 28 percent above the 1947–49 average. Record outturns of meat animals and poultry products and near record outturns of dairy products were attained. Animal units of breeding livestock increased 4 percent in 1959 compared to 1958, but livestock production per breeding unit decreased almost 2 percent.

Crop production in 1959 equaled the 1958 all-time record. Total production of feed grains and of sugar crops attained new record outturns. The first 4-billion bushel corn crop was produced in 1959. Total production of corn and cotton increased 16 and 29 percent, respectively, compared with 1958. These crops, along with sorghum, sugar beets, sugarcane, and dry peas, set new high yields per acre. The total acreage of cropland used for crops increased about 2 percent in 1959 compared to 1958, while crop production per acre decreased 2 percent.

61. *Market values of farm real estate in 48 States (excluding Alaska and Hawaii) continued to advance in the 4 months ended July 1, 1959.*—However, the rate of increase was less than in previous periods. Values were essentially unchanged from their March level in 24 States (fig. 2). The national index of average value per acre advanced to 169 (1947–49=100), 1 percent above March 1 and 6 percent above a year earlier.

FIGURE 1

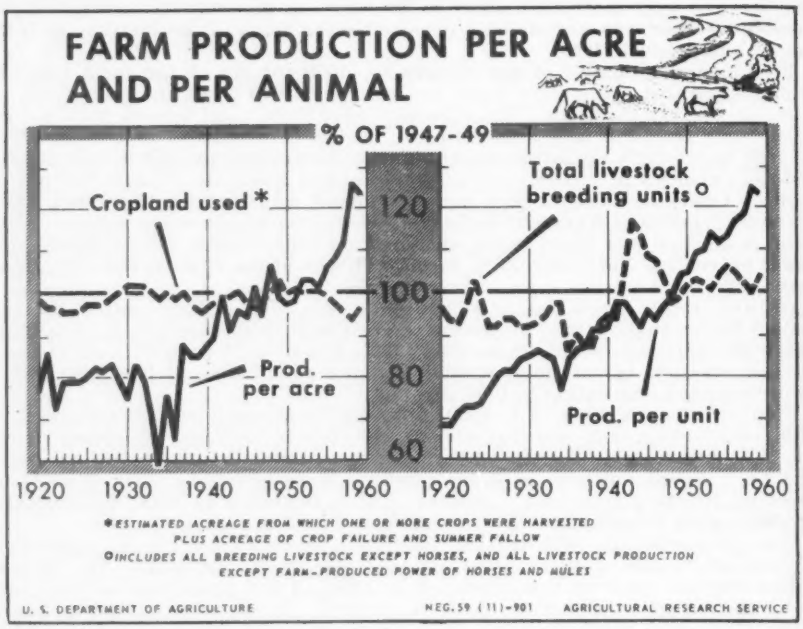

FARM PRODUCTION PER ACRE AND PER ANIMAL
% OF 1947-49
Cropland used *
Total livestock breeding units °
Prod. per acre
Prod. per unit
120
100
80
60
1920 1930 1940 1950 1960 1920 1930 1940 1950 1960
*ESTIMATED ACREAGE FROM WHICH ONE OR MORE CROPS WERE HARVESTED PLUS ACREAGE OF CROP FAILURE AND SUMMER FALLOW
°INCLUDES ALL BREEDING LIVESTOCK EXCEPT HORSES, AND ALL LIVESTOCK PRODUCTION EXCEPT FARM-PRODUCED POWER OF HORSES AND MULES
U. S. DEPARTMENT OF AGRICULTURE
NEG. 59 (11)-901 AGRICULTURAL RESEARCH SERVICE

FIGURE 2

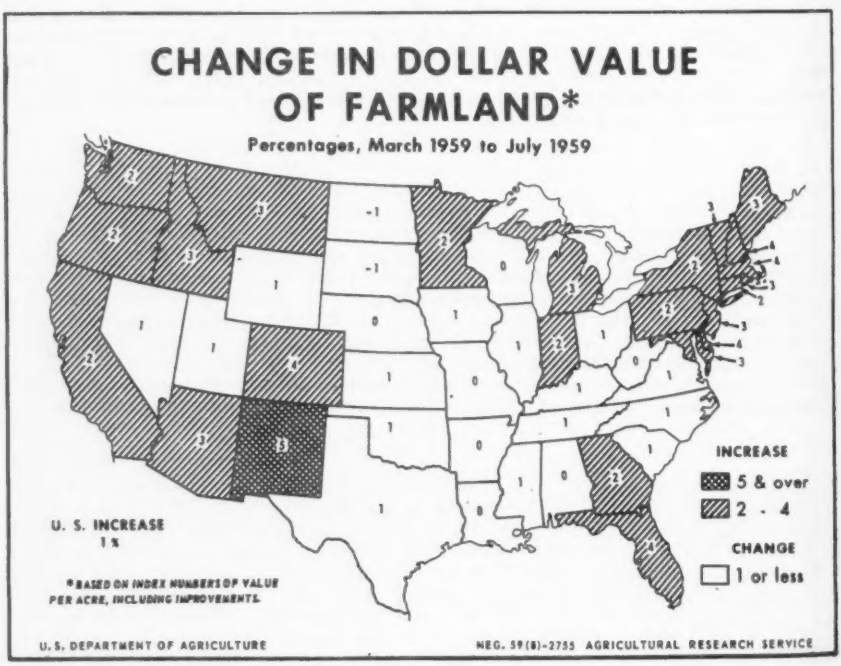

CHANGE IN DOLLAR VALUE OF FARMLAND*
Percentages, March 1959 to July 1959
U. S. INCREASE 1%
*BASED ON INDEX NUMBERS OF VALUE PER ACRE, INCLUDING IMPROVEMENTS.
INCREASE
5 & over
2 - 4
CHANGE
1 or less
U. S. DEPARTMENT OF AGRICULTURE
NEG. 59(8)-2755 AGRICULTURAL RESEARCH SERVICE

TABLE 1.—*Net farm income, commercial farms, by type and location, 1958, with comparisons*

| Type and location of farm | Average | | | 1956 | 1957 | 1958 [1] |
|---|---|---|---|---|---|---|
| | 1937–41 | 1947–49 | 1948–57 | | | |
| Dairy farms: | | | | | | |
| Central Northeast | $960 | $3,892 | $4,029 | $4,179 | $4,641 | $4,810 |
| Eastern Wisconsin | 1,480 | 4,365 | 3,837 | 3,456 | 3,656 | 3,360 |
| Western Wisconsin | 1,236 | 3,284 | 3,146 | 2,978 | 3,286 | 3,341 |
| Dairy-hog farms: Southeastern Minnesota | 1,217 | 3,868 | 3,871 | 3,926 | 3,919 | 4,302 |
| Corn Belt farms: | | | | | | |
| Hog-dairy | 1,642 | 5,639 | 5,796 | 5,108 | 6,339 | 7,448 |
| Hog-beef raising | 928 | 3,370 | 3,727 | 3,169 | 4,135 | 5,488 |
| Hog-beef fattening | 2,521 | 10,665 | 8,658 | 6,899 | 7,445 | 9,619 |
| Cash grain | 2,627 | 8,930 | 8,495 | 9,382 | 7,239 | 7,811 |
| Poultry farms, New Jersey: Egg producing | ---- | 5,975 | 3,875 | 2,326 | 2,127 | 2,693 |
| Cotton farms: | | | | | | |
| Southern Piedmont | 495 | 1,565 | 1,776 | 1,570 | 1,529 | 2,473 |
| Texas, black prairie | 1,019 | 3,090 | 2,491 | 903 | 1,790 | 2,885 |
| Texas, high plains: | | | | | | |
| Nonirrigated | 1,675 | 6,411 | 4,143 | 2,526 | 6,718 | 9,265 |
| Irrigated | ---- | 10,761 | 10,945 | 12,594 | 11,228 | 17,819 |
| Mississippi Delta: | | | | | | |
| Small | ---- | 1,923 | 1,802 | 1,714 | 1,271 | 1,344 |
| Large-scale | ---- | 20,465 | 21,018 | 20,383 | 12,020 | 13,598 |
| Peanut-cotton farms: Southern coastal plains | ---- | 2,313 | 2,519 | 2,759 | 2,265 | 3,410 |
| Tobacco farms: | | | | | | |
| Kentucky: Tobacco-livestock | 1,192 | 3,334 | 3,365 | 3,200 | 2,873 | 3,414 |
| North Carolina: | | | | | | |
| Tobacco-cotton | ---- | 3,208 | 3,338 | 3,674 | 2,290 | 3,394 |
| Tobacco-cotton (large) | ---- | 3,923 | 4,158 | 4,944 | 2,779 | 4,430 |
| Tobacco (small) | ---- | 2,354 | 2,618 | 2,970 | 2,021 | 2,667 |
| Spring wheat farms: | | | | | | |
| Northern plains: | | | | | | |
| Wheat-small grain-livestock | 872 | 6,323 | 5,007 | 6,930 | 4,053 | 6,867 |
| Wheat-corn-livestock | 1,127 | 5,972 | 4,310 | 3,278 | 5,332 | 7,104 |
| Wheat-roughage-livestock | 533 | 5,370 | 4,012 | 2,899 | 4,475 | 5,032 |
| Winter wheat farms: | | | | | | |
| Southern plains: | | | | | | |
| Wheat | 1,174 | 10,016 | 7,050 | 3,764 | 5,923 | 12,446 |
| Wheat-grain sorghum | 1,092 | 9,433 | 4,302 | 2,332 | 5,178 | 11,465 |
| Pacific Northwest: | | | | | | |
| Wheat-pea | 2,764 | 11,864 | 12,404 | 13,363 | 15,040 | 9,645 |
| Wheat-fallow | 2,026 | 12,776 | 12,469 | 7,637 | 14,785 | 12,107 |
| Cattle ranches: | | | | | | |
| Northern plains | 954 | 6,439 | 4,954 | 2,108 | 4,164 | 6,409 |
| Intermountain region | 2,892 | 8,665 | 8,039 | 5,728 | 8,382 | 13,115 |
| Southwest | ---- | 5,698 | 3,898 | −1,245 | 4,873 | 9,242 |
| Sheep ranches: | | | | | | |
| Northern plains | 2,711 | 6,914 | 7,975 | 6,057 | 10,949 | 13,289 |
| Southwest | ---- | 5,224 | 4,380 | 723 | 6,062 | 11,328 |

[1] Preliminary.

The total market value of farm real estate was estimated at $126.6 billion on July 1.

Land values have increased continuously since early in 1954. A part of this increase represented a return to the pre-World War II relationship between farm income and land values, but present indications are that values have increased a little more than may be warranted by current and prospective levels of farm income (fig. 3). The residual net return on the market value of farm real estate declined to about 3 percent in 1959 and is expected to be a little less in 1960. This would be the lowest rate of return since the mid-1930's, and about the same as in 1910–15 and 1925–29.

Active farmers bought about three-fifths of all farms and parcels of farmland sold in the year ended March 1, 1959. More than 40 percent of all purchases were for purposes of farm enlargement, about double the proportion a decade ago. Nonfarmer buyers bought a little more than a third of the farms and tracts sold, about the same proportion as in previous years.

As in the previous 3 years, two-thirds of the farmland purchases in 1958–59 were financed with some form of credit. The debt incurred averaged 64 percent of the purchase price. Sellers were the most important source of credit, providing all the credit used for 43 percent of all credit-financed transfers in 1958–59. About half of the seller-financed transfers in 1958–59 involved the use of sales contracts rather than conventional mortgages; this was about double the pro-

portion in 1946. However, the use of contracts and the relative rates of increase varies considerably by areas (fig. 4). The land contract is a credit device that permits lower downpayments than are available from credit agencies because the seller retains title to the property until all payments, or a predetermined proportion of the purchase price, has been paid.

62. *Farm debts continue rapid rise.*—Total estimated farm debt (exclusive of price support loans) was $20.8 billion on January 1, 1959. This was an increase of 10 percent from the $19 billion outstanding a year earlier. The total was about 10 percent of the value of all farm assets at the beginning of 1959. Farm-mortgage debt amounted to $11.3 billion on January 1, 1959, the highest total recorded since farm-mortgage debt estimates began in 1910. The increase during 1958 was 7 percent. Non-real-estate debt increased 12 percent in 1958 and amounted to $9.5 billion at the beginning of 1959. The non-real-estate debt held by banks and federally sponsored agencies was $5.8 billion on January 1, 1959, an increase of 16 percent from the year earlier (fig. 5).

The uptrend of farm debt continued in 1959. Indications are that on January 1, 1960, the farm-mortgage debt will be at least 6 percent higher, and the non-real-estate farm debt 12 percent higher, than at the beginning of 1959.

The rates of increase in both farm-mortgage and non-real-estate debt were larger in 1958 and 1959 than in the previous years and reflected increased expenditures for feeder cattle and farm machinery, a continuing strong demand for farm real estate, and generally good availability of farm credit.

63. *Tax payments on farm real estate rise.*—These payments amounted to $1,103 million in 1959, or 5.7 percent more than in the preceding year. This estimate is based on a survey of taxes levied on farm real estate in calendar year 1958. Since the close of World War II these taxes have been rising at a rate of more than 5 percent a year. In 1959, tax payments absorbed almost 8 percent of net farm income before real estate taxes, a proportion more than two and one-half times that of 1945 (fig. 6).

FIGURE 3

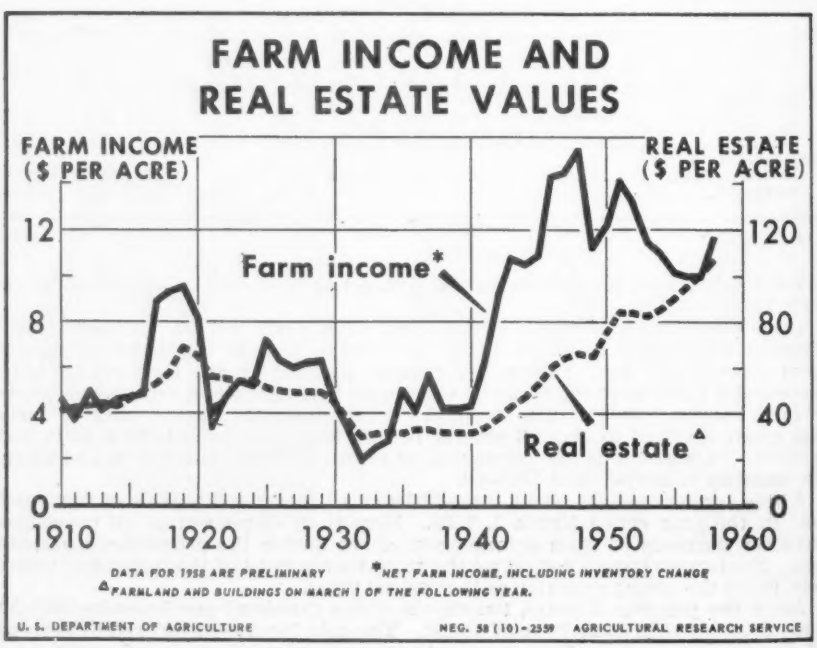


FIGURE 4

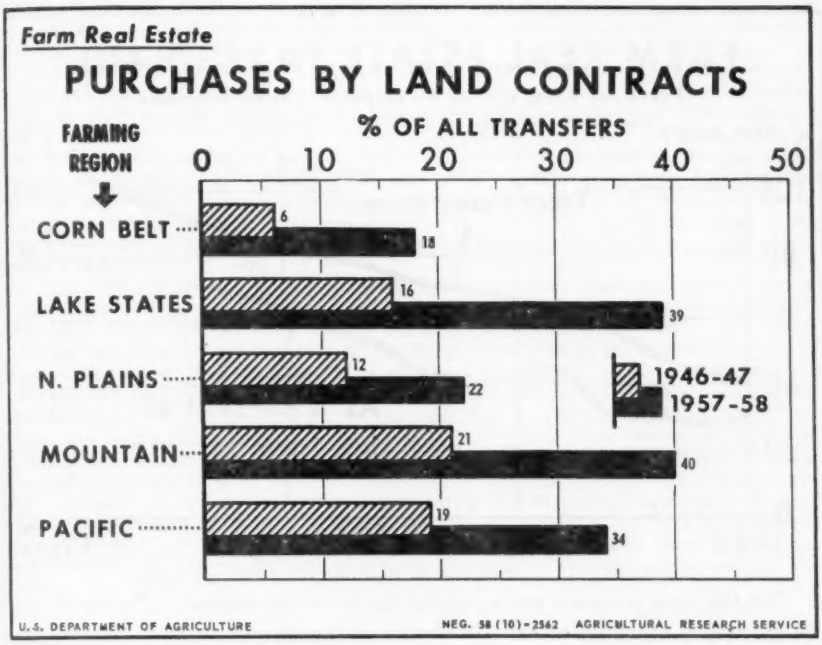



FIGURE 5

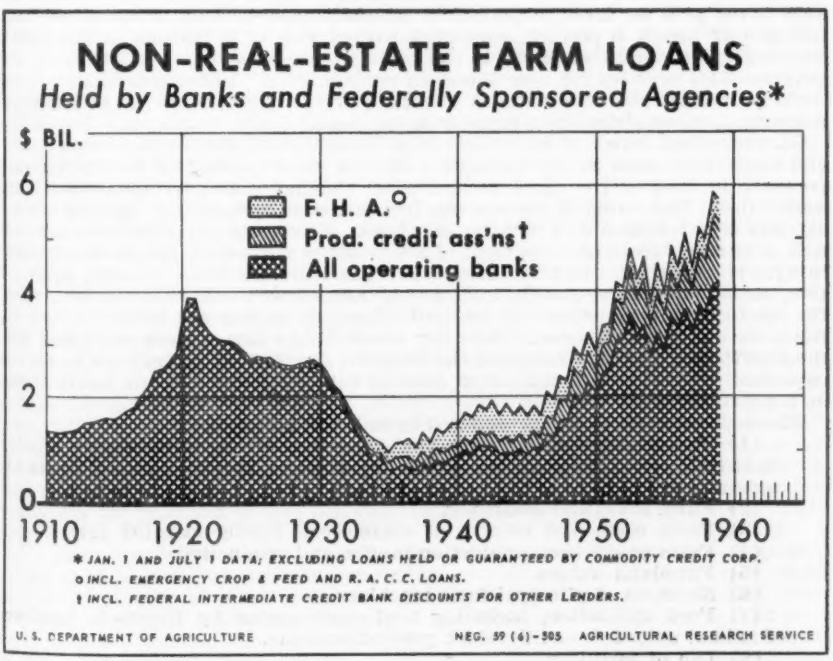
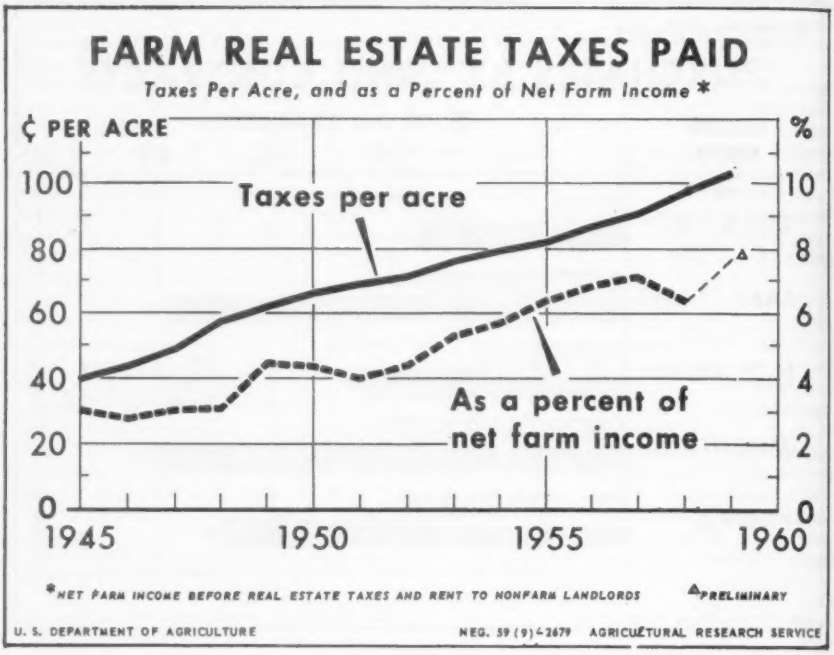


FIGURE 6




The rise in farm real estate taxes has been more rapid in areas near cities. In 1959 taxes paid on farm properties in standard metropolitan areas showed an increase of nearly 8 percent, compared with a rise of 4 percent in the rural counties. The cause lies chiefly in the rapidly increasing requirements for local governmental services for new suburban communities. Difficulties of assessing farm properties also are acute in suburban fringe areas, with the result that assessment inequalities are especially pronounced.

64. *Statistical series of increasing importance.*—Statistical series to measure and explain changes in the farmer's situation are becoming of increasing importance in view of the rapid technological changes that have taken place in agriculture. The value of these series has increased substantially as the coverage has been widened and new series added. Especially important during the past year has been the development of a new series measuring production inputs in agriculture in total and by categories. The regional series on farm production, man-hours of farmwork, and closely related series have been developed for the 10 farm production regions. Additional situations are being covered in the costs and returns series. Data for wheat-fallow farms were published for the first time in 1959. Coverage of the financial situation of agriculture has been expanded to provide information on interest rates of major lending institutions on a quarterly basis.

The major statistical series prepared include the following:

(1) Financial situation including measures of farm mortgage credit, short-term credit, financial assets held by farmers, and the Balance Sheet of agriculture.
(2) Farm taxes and insurance.
(3) Farm costs and returns of commercial family-operated farms.
(4) Farm production, production inputs, and productivity.
(5) Farmland values.
(6) Numbers of principal farm machines.
(7) Feed utilization, including feed consumption by livestock, number of animal units fed, and livestock production units.
(8) Use of fertilizer.
(9) Labor used on farms and productivity by enterprises and regions.

65. *Conservation reserve reduces production in Maine potato area.*—A field survey of farmowners in Aroostook County, Maine, who are participating in the program, indicates that substantial reduction in production is being achieved on participating farms at payment rates that provide modest returns from investments in farm property. The reduction in value of crop production at 1958 prices, per dollar of annual rental payment, averages as follows: $13 under 1957 and 1958 regular programs, $9 under the 1958 experimental bid program, and $5 under the 1959 program. Rental payments after real estate taxes per $100 of farm real estate value, on farms with all eligible land in the program, average as follows: $1.50 under 1957 and 1958 regular programs, $5.20 under the 1958 experimental bid program, and $6.40 under the 1959 program. More commercial farms are participating in 1959 than in earlier years as rental rates have increased. Also, in 1959, rental rates on individual farms are determined by land productivity ratings.

66. *Tobacco allotments a major factor in determining land values.*—A study of the effect of the tobacco production control program upon land values indicates that a substantial part of the benefits of the program are attached to land. On the basis of an analysis of 213 farm transfers in Pittsylvania County, Va., in the period 1954–58, the value of the tobacco allotment was estimated at $5,649 per farm or 55 percent of the average sale price. The trend in the estimated per acre value of allotments has been markedly upward in recent years, increasing from $962 in 1954 to $1,673 in 1957. The owner of the land at the time of program initiation appears as the major beneficiary, with a corresponding reduction in benefits available for succeeding owners and operators.

67. *Regional adjustments in grain production to eliminate surpluses.*—A preliminary study indicates that as much as 30 million acres of high-production-cost land would be withdrawn from production of wheat and feed if average annual output were brought into line with demand by discontinuing production in areas that are at a disadvantage because of high production costs. Using several spatial and programing models, estimates have been made of the comparative advantage among 104 areas in the United States in the production of wheat and feed grains. The main Corn Belt and wheat areas would, in general, remain in production. The areas where cost disadvantages were indicated include areas such as eastern Colorado and New Mexico; limited parts of Kansas, Oklahoma, and Texas; and major portions of both the northern and northeastern dairy areas and the Southeast.

The year 1954 served as the basis for relating output to requirements for this preliminary study. A more inclusive model is now being constructed which includes nongrain crop and livestock activities. Solutions of such models can provide a starting point for designing programs to encourage regional adjustments in grain production. Current research techniques can provide a better means than uniform deviations from historical acreage and production patterns for bringing the structure of agriculture into line with economic development trends.

68. *Long-term projections made of land use needs.*—Studies of long-term agricultural requirements based on a population of 370 million and corresponding projections as to economic growth indicate that with projected economic attainable yields, 122 million acres more cropland will be needed by the year 2010. Of this, 97 million acres would be a net addition, while 25 million acres would be needed to replace cropland absorbed by urban growth. A total of 575 million acres of cropland would be required 50 years from now, compared to 478 million acres in 1950 at the economically attainable levels. The land available for permanent pasture would be less than in 1950, with increased forage production to meet livestock requirements dependent upon more intensive use. Nonagricultural uses of land would rise from 105 million acres in 1950 to 190 million acres in 2010, or an increase of 85 million acres. Meeting requirements of the magnitude indicated will necessitate more rapid development and the application of improved technology and management of land and water resources for cropland in use, and the bringing of additional acres into production.

69. *Increased farm output heavily dependent on higher yields.*—A recent study throws new light on the changing sources of increased farm output. Nearly 45 percent of the increase in output during the last 15 years came from the large increase in crop production per acre as compared with about a 33 percent increase during the period 1920–39. The greater quantity of fertilizer used on farms was a major factor in the stepup in farm production during the

World War II and postwar years. It accounted for more than half of the increase in crop production per acre.

A greater volume of product added by livestock accounted for a fourth of the additional output during World War II and the postwar years. Use of land released by the shift from animal to tractor power to produce products for sale accounted for less than a fourth of the increased farm output in postwar years as contrasted with more than one-half during the 1920–39 period. Total changes in cropland acreage and pasture production have been relatively unimportant as sources of increased farm output.

70. *Industrial development improves incomes in low-income rural areas.*—Studies in selected low-income areas in 15 States indicate that the extent of nearby industrial development is an important factor affecting the income of employable farm people in those areas. One of the major low-income areas recently experiencing large industrial growth of its own and lying in close proximity to other large industrial growth centers includes 24 northeast Texas counties. Findings from a random sample of 1,189 open country households in this area reveal that under the influence of industrial development, very few able-bodied high school graduates under 45 years of age have remained in full-time farming. Full-time farmers with these characteristics accounted for less than 1 percent of all family heads in the study sample.

Nearly 30 percent of the areas' farm families, however, still had money incomes in 1955 of less than $1,000. These extremely low incomes now occur mainly among families headed by persons who are 65 years of age or over, have a permanent physical condition limiting the kind or amount of work they can do, or are females. Only 10 percent of the farm families in this low-income class had able-bodied male heads under 45 years of age.

Studies of the incomes and resources of open country families in areas of Louisiana, Mississippi, Georgia, and Florida that are less accessible to industrial employment indicate a lower general level of incomes among farm families and more frequent occurrence of low incomes among families with able-bodied male heads.

71. *Size of ownership unit and farm consolidation increasing in the Great Plains.*—Studies of rural land ownership and farm tenure in the Great Plains show considerable growth in the average size of both ownership and operating units. The average size of ownership unit increased from 570 acres in 1945 to 643 acres in 1958. Little change occurred during this period in the concentration of ownership as between large and small farms. One-fourth of the individual owners were nonoperating landlords and owned one-fifth of the farm and ranch land in the Great Plains States. Three-fourths of the owners operated at least part of the land they held. Private corporations make up less than 1 percent of all landowners, but owned about 8 percent of the farm and ranch land.

About one-fifth of the farm operators interviewed were planning to increase their farm acreage in the immediate future, indicating a further movement toward farm consolidation. The land market in the Great Plains is mainly a parcel market which involves the purchase and sale of tracts of land rather than of complete farms. The majority of transfers are between farmers. Sellers are mainly farmers who are leaving agriculture or who are reducing the scale of their operations. Buyers are also mainly farmers who are looking for land to add to their present farms. They often attach extra "site value" to a particular tract of land that is well located with respect to their present farm.

72. *Widespread credit needs in the Great Plains.*—A study of the financial and credit situation in the Great Plains showed that in mid-1957 about three-fourths of all farmers had debts of some kind and nearly half had applied for loans or requested credit in the previous 12 months. Young farmers were more likely to have debt and to have requested credit than older farmers, and large-scale farmers used more credit and had more debts than small-scale farmers. Over 90 percent of the farmers who applied for loans or requested credit received at least part of the credit they requested. Generally, owner-operators were more successful than tenants in obtaining as much credit as they asked for, and large-scale farmers were more successful than the operators of small farms. Banks were the most common source of credit reported, and merchants and dealers were next.

73. *Herringbone milking parlors reduce labor and investment costs.*—The building and equipment cost is only $184 per cow milked in the double-four herringbone parlor as compared to over $200 for a conventional milking parlor, and nearly $400 for a stanchion barn, according to a recent study of alternative

dairy systems. In 2 hours a skilled operator can milk a herd of approximately 85 cows as compared to about 60 in a conventional milking parlor or a stanchion barn. Operating costs, other than labor, are estimated to be lower for the milking parlors than for the stanchion-barn systems. Adoption of the herringbone milking parlor will encourage larger dairy farms.

*Agricultural engineering research*

74. *Controlled temperature increases gain for summer-fed hogs.*—Research in cooperation with the California Experiment Station on controlled environment in summer for growing pigs has shown important gains over the uncontrolled environment. Gains of 2 pounds or more per day were obtained with pigs weighing 80 to 220 pounds when the indoor temperature was controlled at about 65° F. This gain is 33 percent more than was obtained with control pigs of the same type fed the same ration outdoors at locations with higher temperatures. This occurred even when the controlled pigs had the best of comfort aids, including wallows, shades, fans, or access to an air conditioned room several degrees cooler than the outdoor air. This basic research indicates the importance of controlled environment in livestock production. Providing such environment may prove feasible under some conditions.

75. *Inside sharpening of disk blades found advantageous.*—Basic research on tillage devices at the National Tillage Machinery Laboratory at Auburn, Ala., conducted in cooperation with industry has established the advantage of inside over outside sharpening. The blades hold their sharp edge longer and require less sharpening. As a result of this research several companies have changed to inside beveled disk blades and will thus supply farmers with more effective and efficient implements.

76. *Cotton ginning equipment improved.*—Ginning cotton with a spike core seed roll accelerator and related increase in gin saw speed resulted in an average increase of about 60 percent in gin saw capacity with experimental equipment at the U.S. Cotton Ginning Research Laboratory, Stoneville, Miss. Tests are continuing with seed-roll-turners. Moving gin trash in a high-pressure small-pipe system required about 5 horsepower as compared to 25 to 50 horsepower in the conventional large pipe system in tests at the Cotton Ginning Research Laboratory at Mesilla Park, N. Mex. Tests are continuing with the equipment to adapt it for use in commercial gins.

77. *Improved potato seed cutter reduces peak labor requirements at planting time.*—This cutter, developed at the Department's Potato Research Center at East Grand Forks, Minn., handles all sizes of potatoes, even those weighing more than half a pound. It has enough capacity to keep one field planter in operation under average conditions and eliminates the three to four workers required to cut the larger potatoes when a conventional cutter is used, or the seven to eight workers required if the entire task is done by hand.

78. *Automatic horizontal silo unloader developed.*—In cooperation with the Washington Experiment Station, a machine to remove silage automatically from horizontal silos has been designed, built, and is being tested at Puyallup. This unloader, in combination with a conveyor-bunk feeding system and necessary electrical controls, can eliminate most of the 1.03 man-hours of labor per ton required in manual operation.

Dr. BYERLY. Thank you, Mr. Chairman.

Mr. NATCHER. Dr. Byerly, go right ahead.

Dr. BYERLY. Thank you.

## DEVELOPMENT OF CHEMICALS AND BIOLOGICAL MEASURES TO REDUCE OR AVOID HAZARDS FROM PESTICIDE RESIDUES

With respect to the increase of $1,502,800 to provide for intensive research to develop chemicals and biological measures for use in agriculture which will reduce or avoid hazards from pesticide residues, this is a very broad item.

The entomology research division would use $1,102,800; animal husbandry research, $75,000; animal disease and parasite research, $100,000; crops research, $100,000; agricultural engineering research, $100,000; and human nutrition research, $25,000.

Now, I should like, if I may, to read this statement and comment upon it.

NEED FOR INCREASE

American farmers and ranchers have long been accustomed to using pesticides against the many different insects and other pests that damage or destroy crops or adversely affect livestock. Losses from insect pests are estimated at over $4 billion annually. No crop basic to the agricultural economy of the United States can be grown profitably without protection from these pests. Chemicals now provide the chief means of controlling these losses but there is growing apprehension by the general public, health authorities, conservationists, canning industry, beekeepers, and others over known or potential hazards associated with their use such hazards include contaminating human and animal foods, or changing their flavor, endangering livestock and wildlife including pollinating and other beneficial insects, and affecting the soil or plants grown in the soil. There is urgent need for increased research to eliminate such hazards.

Economical, effective, and safe chemicals are needed to assure satisfactory control of insects. Current legislation provides that the Food and Drug Administration establish residue tolerances for pesticides or exemptions from tolerances, to assure the availability of foods free from harmful chemical contamination. The Department of Agriculture has the responsibility for determining whether particular pesticides will leave residues not in excess of proposed tolerances when used as directed. Residue research by this Department must be intensified to develop assay methods for pesticides and metabolites as basis for recommendations for use of these chemicals. Many chemical control measures now available cannot be recommended because of inadequate information on the significance of residues that may result from their use. This problem is illustrated by the following examples:

1. Several new insecticides give excellent control of insects that attack livestock but the Department is unable to recommend them to dairymen for controlling insects on dairy cows without the risk of residues appearing in milk.

2. Although several chemicals are extremely effective and economical for controlling grasshoppers, there is a danger that their use on crops to be grazed by dairy animals or animals being fattened for slaughter will leave residues in milk or meat or that such use will endanger fish and wildlife.

3. The canning industry is concerned over pesticide residues which may occur in processed foods intended for human consumption. In addition, this industry has realized about $3.5 million a year from the sale for livestock feed of such byproducts as corn husks, pea vines, beet tops, and apple pomace. If current restrictions on feeding these byproducts because of residues are not overcome, this revenue will be lost permanently and it will cost the industry an additional $1 million annually to dispose of these byproducts.

4. Private, State, and Federal conservation groups and others claim that extensive use of insecticides and pesticides by growers and in large scale eradication programs are endangering wildlife, pollinating insects, and other beneficial organisms. Many of these claims cannot be refuted entirely with existing information.

To meet this growing problem, a comprehensive expanded research program is urgently needed to develop (1) new methods to control

insects which do not involve the use of chemicals, and (2) safer chemicals for pest control and improved methods for their application and use. The development of more biological controls and improved pesticides and methods for their application offers great possibilities for reducing the cost of pest control.

Biological methods offer the best possibilities for control of destructive insect pests by nonchemical procedures. Biological agents alone, however, cannot at present be counted on to solve our pest control problems. In most instances, the host and the controlling agents reach a natural balance at a level which permits greater crop losses than the grower can afford. Therefore, farmers are still primarily dependent on economical, effective, and safe chemicals to assure satisfactory pest control essential to produce the quantity and quality of crops and livestock necessary to meet the Nation's needs.

Some insecticides used on animals or on plants consumed by them produce residues which undergo chemical changes in the body and produce other compounds, called metabolites, that may be more toxic than the original insecticide. Basic research is needed to gain a clear understanding of these changes. Careful checking for residues in food products, such as meat, milk, and eggs, needs to be intensified to insure the safety of farm production practices. Since some pesticides affect flavor, texture, or other qualities of food products, research is needed to determine the effects of pesticide applications upon these qualities and upon consumer acceptance.

Several crops offer low market potential for pesticides because of the relatively small acreage grown and industrial companies have not indicated interest in conducting pesticide research on these crops so as to meet the labeling requirement of Public Law 518, 83d Congress. Certain chemicals that were in use prior to passage of this act still present some residue problems because the companies concerned have not initiated residue studies since they are not protected by patents. Basic research on the fate of chemicals in plants and soils is needed to fill an important gap in the present industrial and public agency programs designed to protect the health of man and animals against harmful residues.

### ADDITIONAL RESEARCH PROPOSED

Research would be intensified to develop chemicals and biological measures for use in agriculture which would reduce or avoid hazards from pesticide residues. In the field of chemical controls, specific lines of research would include studies to:

1. Find and develop new, safer pesticides and repellents for use on livestock and forage crops to prevent residues in milk and to avoid or minimize residues in meat and establish safe amounts that may be applied for pest control.

2. Develop attractants to use as baits with insecticides and thereby reduce the amount of insecticides otherwise needed for insect control. This will include basic research on nutrition of insects, factors which lure insects to the plant or animal nest and on sex and other attractants such as light and sound. The medfly was eradicated from Florida with a bait-insecticide combination which made it possible to obtain control with one-fourth of the insecticide which would otherwise have been required.

3. Develop information on the metabolites or breakdown products resulting from the use of pesticides and develop more precise chemical and bio-assay methods for determining minute amounts of pesticide residues and their metabolites on harvested crops and animal products.

4. Determine toxicity and safe amounts of promising pesticides, herbicides, growth regulators, nematocides, fungicides and other compounds that may be applied to crops or soils for pest control.

5. Conduct animal feeding and other tests under controlled conditions to determine tolerance limits to pesticide residues and ways of producing animals within these limits. Determine the symptoms and specific diagnostic pathology for poisoning of livestock and poultry with pesticides and other chemicals, including hormones, tranquilizers and other such feed additives. Develop methods, criteria, and procedures for estimating the hormone content of tissues. In these studies, veterinary surgical operations would be required periodically on cattle to sample the fat from inside the abdominal cavity and to obtain other biopsy samples for chemical tests after various periods of time and after the use of different pesticides on animals and on feed they consume.

6. Develop chemicals less harmful to pollinating insects and to the natural enemies of destructive insects and ways of integrating chemical control programs with biological control so as to permit maximum benefits from natural enemies of destructive pests.

7. Develop chemicals, through basic research, such as hormones, that would regulate the growth of insects, and be selective in action on them, but nontoxic to higher animals, plants, and soils.

8. Investigate the use of systemic insecticides in plants and animals; the absorption, movement and accumulation of such pesticides in plants and animals; and the type and extent of resulting residues.

9. Determine the effects of pesticide accumulations in soils on plants and soil organisms.

10. Develop new and improved equipment and methods for the application of pesticides either as sprays, dusts or granules to increase the efficiency and effectiveness of application and reduce the amount of pesticides required for control.

11. Expand palatability testing of foods exposed to pesticides affecting flavor and develop objective methods for evaluating other qualities, such as texture, color changes during cooking, and other altered characteristics likely to affect household use.

Additional research would also be conducted to biological controls which create no known hazard to man, animals, fish, wildlife, and soil organisms. They include the use of insect diseases and parasites which are generally specific in action against destructive insects and cause little or no harm to bees and other beneficial insects. They also include the use of the sterilized male technique which has been successful in eradicating the screw-worm from the Southeastern United States. Specific lines of research on biological controls would include studies to:

1. Find parasites and predators capable of controlling destructive insects and weeds, and develop ways of producing and liberating them in effective control programs. Biological control methods have been successful with the citrus black fly and the Klamath weed, and substantial benefits have resulted from importation of parasites to control the European corn borer, sugarcane borer, spotted alfalfa aphid, Japanese beetle, and many other insects.

2. Find bacteria, fungi, viruses, protozoa and other organisms useful for controlling pests and develop methods for applying them for control purposes.

3. Explore the use of the sterile male method of biologically controlling major destructive insects, a method which may have potential usefulness in controlling such pests as pink bollworm, tobacco and tomato hornworms, tobacco budworms, cotton bollworms, tropical fruit flies, cattle grubs, vector mosquitoes, peach tree borer, plum curculio, and sugarcane borer.

PLAN OF WORK

The research would be conducted in cooperation with the State agricultural experiment stations and industry at currently existing locations, where the problems occur. Cooperative relations would be maintained with the Food and Drug Administration, Public Health Service, and other interested agencies.

CURRENT RESEARCH WORK

Mr. WHITTEN. How much of this work is new and how much of it is an expansion of the work that you already are doing? I would like to know the funds that are going into this general field for the present fiscal year, and how much of this increase is just to enlarge and increase present activities, and how much is new projects in a new field.

Dr. BYERLY. That is a difficult question to answer. As nearly as we can estimate, the funds expended during the current fiscal year total $6,554,550.

Mr. WHITTEN. Is that all done by personnel of the Department or is that done by contract, or a combination of contract and departmental personnel?

Dr. BYERLY. Some of it is done by cooperative agreement in cooperation with the State experiment stations. Very little of it—I think a little but not much—is done by contract. Most of it is done by our own personnel.

UTILIZATION OF FUNDS

Mr. WHITTEN. Could you enlarge your statement for the record to show how this money is being spent and in what areas, and a breakdown of what we are doing now?

(The requested information follows:)

*Research to develop chemicals and biological or other measures to reduce or avoid hazards from pesticide residues*

| Research activity | Fiscal year 1960 [1] | Increase for research on residue hazards, fiscal year 1961 budget estimates |
|---|---|---|
| 1. Entomology research on control and eradication of insect pests of fruits, vegetables, truck and garden crops, cereals, forage, cotton, and those affecting man and animals | [2] $5,270,300 | $1,102,800 |
| 2. Agricultural engineering research to find improved methods of application of pesticides which would require lesser amounts of pesticides, for early dissipation of residues, etc | 130,000 | 100,000 |
| 3. Crops research on herbicides, nematocides, fungicides, defoliants and desiccants, and plant growth regulators | [3] 1,035,000 | 100,000 |
| 4. Animal disease research on toxicological effects of pesticides on livestock | 69,700 | 100,000 |
| 5. Animal husbandry research services on pesticide residue problems related to livestock and some research on feed additives | 28,050 | 75,000 |
| 6. Human nutrition research services on effects of pesticides on palatability of foods | 21,500 | 25,000 |
| Total | 6,554,550 | 1,502,800 |

[1] Does not include amounts for construction ($2,200,000) or amounts from special fund for additional labor at research stations.
[2] Includes all entomology research except bee culture investigations.
[3] Of this amount, only about $20,000 is directly on residue problems.

NOTE.—All research is conducted under the appropriation, "Salaries and expenses, Research, Agricultural Research Service."

In fiscal year 1960 Federal research is located in 39 of the 50 States, much of it in cooperation with State agricultural experiment stations. Research to find insect predators and other biological control methods is also conducted in 6 foreign countries. About $35,000 in research contracts is anticipated for fiscal year 1960.

The increase proposed in the 1961 budget estimates would provide for the following work:

*(1) Entomology research ($1,102,800)*

About $777,800 of the proposed increase would be for initiation of new lines of research and $325,000 for expansion of work in progress, some of which is presently carried out on a very limited scale. Lines of work to be undertaken or expanded are as follows:

Initiate or expand research on use of biological controls for insects of melons, vegetable crops, and citrus, including citrus mites.

Initiate studies on translocation of insecticides from soil or foliage into plants, with particular reference to residues in edible portions of vegetables.

Initiate and expand new approaches to control of codling moth and other deciduous fruit insects by use of biological controls, attractants, sterile male techniques, use of nematode-pathogen complex; and use of systemic insecticides for control of orchard mites, etc.

Expand research on insecticides to control adult Japanese beetles which will not leave harmful residues on fruits and vegetables.

Develop safer chemicals for control of potato and other wireworms and cabbage insects; currently there is only meager research on this problem.

Increase research on insect pathogens for control of tobacco insects.

Expand cooperative studies with crops research on development of varieties of sugarcane resistant to insects.

Expand screening of new chemicals for safer control of insects of deciduous fruits, vegetable crops and sugar beets.

Expand large-scale experiments for control and eradication of fruitflies from isolated areas by releases of sterile male fruitflies and by use of combinations of chemical male sex attractants and insecticides.

Expand research on insecticides for control of various clover insects.

Expand research on the control of grasshoppers on alfalfa and rangelands, alfalfa weevil, and other forage insects to find effective pesticides without objectionable residues and to initiate research on biological control measures.

Expand research on biological control of range weeds through use of insects.

Initiate research on use of gamma irradiation for sterilization of mosquitoes,

stableflies, hornflies, and other insects affecting animals, or use of antifertility compounds.

Development of new insecticides, repellents, and attractants for control of stableflies, hornflies, ticks, and other insects affecting livestock.

Initiate research on chemical antifertility and antimetabolism compounds for control of mosquitoes, flies, ticks and other insects affecting man and animals.

Initiate or expand research on methods of avoiding insecticide damage to honeybees and wild bees essential to pollination of field crops and vegetables.

Initiate research on synthesis of new chemical compounds which will impair fertility of insects and on synthesis of new baits or attractants, the use of which would reduce quantities of insecticides required for control.

Initiate explorations in Africa and South America for parasites and predators to control insect pests and expand research on explorations in countries where work is currently underway.

Initiate research to determine climatic requirements of introduced parasites. Such information is essential for the establishment of the insects in this country for control purposes.

Expand research to develop methods for treating imported fruits and vegetables to eliminate pests and permit their movement under quarantine requirements.

Initiate basic research to find bacteria, fungi, viruses, and other diseases affecting destructive insects; to develop methods for rearing tobacco hornworms in large numbers for studies of their control; to study genetics of insect parasites and intraspecific variations of parasites; and on possible influence of photoperiodism on diapause of insects, including biochemical reactions involved.

(2) *Agricultural engineering research* (*$100,000*)

Expansion of research on new and improved equipment and methods of application for vegetable crops, and of basic studies of forces which control deposition of all pesticides.

Initiate work to develop equipment and methods for more accurate and uniform application of pesticides to tobacco, and to livestock to prevent residues in meat.

(3) *Crops research* (*$100,000*)

Initiate research on residue problems which may be associated with current wide use of nematocides, fungicides, defoliants, dessicants, and plant growth regulators.

(4) *Animal disease research* (*$100,000*)

Expand research on toxicological effects of pesticides on livestock. The requested increase would more than double the present research on toxicology of pesticides which is limited currently both in scope and in number of pesticides which can be covered.

(5) *Animal husbandry research* (*$75,000*)

Initiate work on physiological effects of pesticide residues in feedstuffs on livestock and livestock products to determine the extent of storage or persistence of residues in livestock, and the amount of residues passing into meat, milk, eggs, and other livestock products. It is necessary to obtain a better understanding of metabolic processes involved. The effect of hormones, antibiotics, and other feed additives would also be studied on a limited scale.

(6) *Human nutrition research* (*$25,000*)

Current work of about $21,500 is limited to service studies on effects of pesticides on palatability of foods. The increase would provide for initiating of research on effects of pesticides on qualities such as texture, flavor, color changes during cooking, and other altered characteristics likely to affect household use, as well as some expansion of studies on palatability.

Mr. WHITTEN. So frequently when these increases are asked for it is taken by those who read the record that what is involved is whether we do the work or not, and there is not involved the question of whether we need to give increased financial support. Frequently they think the increase requested is the total amount involved.

You heard our discussion yesterday. I do not think that we directed the questions to you.

COOPERATION WITH OTHER DEPARTMENTS AND AGENCIES

I notice that cooperation is mentioned with Department of Health, Education, and Welfare and the Food and Drug Administration and the Public Health Service, and other interested agencies.

Now, what does that cooperative relationship mean? Does it mean they actually participate in, or have anything to do with the selection of the projects, or do they in any way commit themselves to accept the findings that you might come up with? What is the story?

Dr. BYERLY. I think a short answer to your questions, and there are several, would be "Yes." That answer would not completely disclose the story, so I must elaborate.

DEVELOPMENT OF NEW PESTICIDES

First of all, to go down to the procedures with respect to the development of pesticides: the burden of providing evidence for their safety is on the manufacturer to a very large extent. He must bring to the Food and Drug Administration adequate information so that the chemical can be evaluated.

Sometimes when a manufacturer has developed chemicals which to him seem to have probable effective use, and with sufficient evidence of safety from his standpoint so that he can afford to go ahead and spend more money, he very often comes to us for evaluation with respect to particular crop uses, the manner of uses, the cultural uses, and things of that sort. We cooperate with industry in this type of evaluation to a very considerable extent.

LAWS RELATING TO USE OF PESTICIDE CHEMICALS

Mr. WHITTEN. Dr. Byerly, could we have, at this point in the record, the appropriate sections of the controlling law in this field? By that I am not trying to get the acts in their entirety. I mean the particular provisions that would place responsibility here, there, and yonder as the circumstances may be so that we might have this in the record at this point.

(The requested information follows:)

LAWS RELATING TO USES OF PESTICIDE CHEMICALS

The Department of Agriculture is responsible for the regulatory functions required under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended (7 U.S.C. 135). Under that Act, the Secretary of Agriculture is directed to regulate the marketing of economic poisons and devices in interstate commerce.

The Department of Health, Education, and Welfare is responsible for the administration of the Federal Food, Drug and Cosmetic Act, as amended (21 U.S.C. 301–392).

An economic poison under the Federal Insecticide, Fungicide, and Rodenticide Act becomes a pesticide chemical under section 408 of the Federal Food, Drug, and Cosmetic Act when used in the production, storage, or transportation of unprocessed food or feed crops. If a residue of a pesticide chemical remains on a food or feed crop at the time of its introduction into interstate commerce, such residue must be covered by a tolerance or exemption under section 408 or such crop is liable to seizure by the Food and Drug Administration of the Department of Health, Education, and Welfare.

As a condition to setting a tolerance or exemption for any pesticide chemical under section 408(i) (21 U.S.C. 346a). The Secretary of Agriculture—

(*a*) Must certify to the Secretary of Health, Education, and Welfare that the pesticide chemical is useful for the purpose for which a tolerance or exemption is sought;

(*b*) Shall transmit to the Secretary of Health, Education, and Welfare, an opinion as to whether the proposed tolerance or exemption reasonably reflects the amount of residue likely to result when the pesticide chemical is used as proposed.

There follows a more detailed statement of the authorities of the Department of Agriculture and of the Department of Health, Education, and Welfare under the above-named two acts.

The Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 135) authorizes the Secretary of Agriculture to regulate the marketing of economic poisons and devices in interstate commerce.

An economic poison is defined as any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any insects, rodents, fungi weeds, and other forms of plant or animal life or viruses, except viruses on or in living man or other animals, which the Secretaary shall declare to be a pest (7 U.S.C. 135). The original act was amended on August 7, 1959, to add to the scope of its provisions nematocides, plant regulators, defoliants, and desiccants. The regulatory provisions are as follows:

(1) Any economic poison shipped in interstate commerce or otherwise under Federal jurisdiction shall be registered with the Secretary before distribution (ch. 125, sec. 4a, 61 Stat. 167);

(2) The distribution of any economic poison in interstate commerce or under Federal jurisdiction which is not registered is prohibited. Such distribution is also prohibited unless the label for the economic poison bears the name and address of the manufacturer, the name brand or trademark under which the article is sold, and a statement of the net weight or measure of content (ch. 125, sec. 3a, 61 Stat. 166);

(3) The term "misbranded" shall apply to any economic poison shipped interstate, which does not bear in addition to the foregoing information, directions for use which are adequate if followed to protect the public; an ingredient statement in acceptable form, and when necessary, a warning or caution statement, which if followed, will prevent injury to living man and other vertebrate animals, useful vegetation, and useful invertebrate animals (ch. 125, sec. 2u, 61 Stat. 165).

Procedurally, an applicant for registration submits proposed labeling for the product, as well as evidence to verify its performance as claimed on the label, and safety of use. If it appears that the product can be used effectively and safely, as directed, and is otherwise in compliance with the statute, it is registered for a 5-year period.

On July 22, 1954, Public Law 518, 83d Congress (21 U.S.C. 321) was enacted to amend the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 301). Under the terms of this amendment, an economic poison within the meaning of the Federal Insecticide, Fungicide, and Rodenticide Act becomes a pesticide chemical under the Federal Food, Drug, and Cosmetic Act when used in the production, storage, or transportation of raw agricultural commodities. Raw agricultural commodities are further defined as any food in its raw or natural state.

Under Public Law 518 (ch. 559, sec. 408(a) 68 Stat. 511), any poisonous or deleterious pesticide chemical not generally recognized among qualified experts as safe for use shall be deemed unsafe unless (1) a tolerance for such a pesticide chemical in or on the raw agricultural commodity has been established by the Secretary of Health, Education, and Welfare, or (2) the Secretary has exempted the pesticide chemical from the requirement of a tolerance.

If deemed unsafe, the pesticide chemical renders the treated raw agricultural commodity adulterated under the provisions of section 402(a) of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 342(a)).

In summary, an economic poison under the Federal Insecticide, Fungicide, and Rodenticide Act, when applied in the production, storage, or transportation of a raw agricultural commodity, becomes a pesticide chemical under the Federal Food, Drug, and Cosmetic Act, as amended. Unless a tolerance has been set for residues of the chemical in or on the raw agricultural commodity or an exemption from this requirement by the Secretary of Health, Education, and Welfare, the treated raw agricultural commodity will be deemed unsafe and adulterated under the provisions of the Federal Food, Drug, and Cosmetic Act. This would render the treated crop liable to seizure under that act. It also renders the shipper of the treated crop subject to prosecution.

Section 408(d)(1) of Public Law 518 (68 Stat. 512; 21 U.S.C. 346a) sets forth the procedures for obtaining tolerances or exemptions for pesticide chemicals to be used on raw agricultural commodities. It is stated therein that any person who has registered or submitted an application for the registration of an economic poison under the Federal Insecticide, Fungicide, and Rodenticide Act may file a petition with the Secretary of Health, Education, and Welfare requesting a tolerance or exemption for the pesticide chemical involved. The petition shall contain the following:

"(A) The name, chemical identity, and composition of the pesticide chemical;

"(B) The amount, frequency, and time of application of the pesticide chemical;

"(C) Full reports of investigations made with respect to the safety of the pesticide chemical;

"(D) The results of tests on the amount of residue remaining, including a description of the analytical methods used;

"(E) Practicable methods for removing residue which exceeds any proposed tolerance;

"(F) Proposed tolerances for the pesticide chemical if tolerances are proposed; and

"(G) Reasonable grounds in support of the petition."

Section 408(1) (68 Stat. 516) of Public Law 518 assigns certain responsibilities to the Secretary of Agriculture in the tolerance or exemption-establishing procedures. As a condition precedent to consideration of the petition for tolerance or exemption by the Secretary of Health, Education, and Welfare, the Secretary of Agriculture must certify to the Secretary of Health, Education, and Welfare that the pesticide chemical is useful for the purpose for which a tolerance or exemption is sought. If the Secretary of Agriculture does not affirmatively certify or certifies only in part as to the usefulness of the pesticide chemical, he must so notify the person requesting the certification. The person may appeal under procedures set forth in the statute. Section 408(1) also requires that the Secretary of Agriculture shall transmit to the Secretary of Health, Education, and Welfare with any certification of usefulness, an opinion as to whether the tolerance or exemption proposed by the petitioner reasonably reflects the amount of residue likely to result when the pesticide chemical is used as proposed.

The legislative history related to the enactment of Public Law 518 clearly indicates that it was the intent of Congress that the Federal Insecticide, Fungicide, and Rodenticide Act and the Federal Food, Drug, and Cosmetic Act should be so administered as to be in consonance one with the other. Therefore, as a matter of policy, the Department of Agriculture does not register economic poisons for uses that result in residues on raw agricultural commodities until an appropriate tolerance or exemption has been established by the Food and Drug Administration under Public Law 518. If a tolerance is established, this Department must be satisfied that the directions for use, when followed, will result in residues that will meet the established tolerance.

The Department will register economic poisons for use on raw agricultural commodities without a tolerance or exemption provided that conclusive evidence is presented to show that no residue will result from such use on a raw agricultural commodity. In this event, a tolerance or exemption is not necessary.

## COOPERATION WITH OTHER DEPARTMENTS AND AGENCIES IN PESTICIDE PROBLEMS

Mr. HORAN. Do you maintain an active, continuous interagency committee in this field?

Dr. BYERLY. There is day-by-day contact at all levels between the agencies, and this involves the Food and Drug Administration and the Public Health Service, too. These are some of the kinds of cooperation of which I spoke. We have this kind of cooperation in response from requests from the Food and Drug Administration and

we sometimes undertake research directly in our own laboratories to answer questions of mutual interest.

An outstanding example of informal cooperation of the Public Health Service is our frequent communication with the Public Health Laboratory at Savannah, Ga., where Dr. Hayes has been a source of information with respect to problems of pesticide residues. Dr. Clarkson may wish to elaborate on this point.

Dr. CLARKSON. You may remember the interdepartmental committee on pesticides which has been in existence for some years is where overall information on pesticides is exchanged among all the departments, including the military. On the precise question that Dr. Byerly is discussing, it is a matter of day-to-day relationships.

### APPLE POMACE FOR DAIRY CATTLE FEEDING

Mr. HORAN. Mr. Chairman, if you will permit me, I would like to recite at this point in the record an experience that I am having right now.

I received this morning a letter from a group of fruit producers out in my district who are having trouble controlling a mite. I do not know whether it is a sucking or a chewing insect.

Dr. BYERLY. Usually sucking.

Mr. HORAN. It is creating a lot of havoc in our home fruit trees, apples and pears. It defoliates them and hurts the crop. It is getting to be a pest that is very difficult to control.

One of the chemical companies has developed a chemical that will control the mite. Earlier this week they wrote to the Food and Drug Administration in Seattle and sent me a copy of their letter. It seems that this new chemical called Tedion can meet the food and drug tolerances on fresh fruit, but when the fruit upon which it has been applied is in the dried form, a pomace, it becomes unfit for dairy cattle to eat as a food. However, Food and Drug does have a restriction on the use of pomace, concentrated fruit, containing DDT, and the chemical company is requesting the same regulation regarding pomace that might have Tedion on it.

So the company has written to the Food and Drug Administration. I talked to John Harvey this morning about it, and he is working on it. This shows you one of the problems you get into in this field that you have just spoken of. It seems to me that if we do have an interdepartmental or an interagency committee, it should be continuously active.

Dr. BYERLY. Mr. Horan, may I emphasize the point that you have raised with respect to apple pomace. It is true that the Food and Drug Administration has warned dairymen against the use of apple pomace in dairy feed because of its possible DDT content. DDT is used largely for the control of the codling moth.

Mr. HORAN. You cannot sell it for dairy feed now. It is against the law, or against the regulations of the Food and Drug Administration.

Dr. BYERLY. If pomace is used in dairy feed, it may result in the presence of DDT in milk. If the milk moves in interstate commerce, it is therefore subject to the action of that agency and they have served public notice they may take such action. We are therefore faced with this sort of situation. While seven parts per million on the

whole fresh apple is permitted, when you remove the juice from the apple you have a product in the remaining pomace which may not be fed to dairy cows because there may be a trace of DDT produced in the milk. That is the law, as I understand it. I support the enforcement of the law, but it is a very difficult situation for us.

### HEPTACHLOR SITUATION

Dr. BYERLY. Mr. Chairman, these past few days heptachlor has been of immediate concern to us. You will recall that the Food and Drug Administration canceled all tolerances for heptachlor. The Department of Agriculture, in immediate compliance with that action, withdrew all the registrations, or served notice to withdraw all the registrations, for the use of heptachlor in any way in which a tolerance had been permitted previously by the Food and Drug Administration.

### DEPARTMENT RESPONSIBILITY IN PESTICIDE PROBLEM

Now, that left a substantial number of no-residue uses. Here, I would like to mention some of the varied responsibilities that we in the Department have because this is also a research responsibility.

We have the research responsibility in our entomology and other research divisions, to provide research information, first, to our regulatory officials who are engaged in the control of plant pests and diseases, and to our regulatory people who register pesticides for us. Secondly, we provide information to farmers.

Each year from our Entomology Research Division we issue a document for the uses of insecticides which currently bears the label AH120. It comes out about this time of the year. We have, therefore, reviewed with the regulatory people the uses which might continue for heptachlor on a no-residue basis.

Now, may I go off the record, Mr. Chairman?

Mr. WHITTEN. Certainly.

(Discussion off the record.)

Mr. WHITTEN. On the record.

### PROCEDURE FOR REGISTERING AGRICULTURAL CHEMICALS

Mr. HORAN. I would like to know the procedure that is followed since we are going into this whole study in almost a crash program. What are the present procedures in registering a chemical for agricultural use?

Dr. SHAW. Under the current laws and regulations the first action that is required is an action by the Department of Agriculture. If a manufacturer has a chemical that he thinks will be useful in agriculture he brings his data and information to our attention and requests a registration of the chemical. We examine the evidence—his evidence, and any other evidence that is available—in the literature or from our own laboratory. If we find we feel that this chemical would be an effective chemical in agriculture, that it could be applied in the way that he has requested it to be applied and leave no residue,

then we register that chemical without any further action by the Department of Health, Education, and Welfare.

On the other hand, if we find that this would leave a residue then the manufacturer must make application to the Food and Drug Administration for a tolerance to be established for this particular chemical. Before Food and Drug will start action on determining the tolerance they must have from us a statement that this chemical will be useful in agriculture and that if used it will leave, in our opinion, a residue of about so much. Then they examine that from the standpoint of the toxicological information submitted by the manufacturer and again any other information that may be available. They may conclude that a tolerance can be established for this, let's say at one-tenth part per million or some other tolerance, or they may decide that it must be a zero tolerance. If a zero tolerance is established, then we can register as uses only those that will leave a zero residue. If they establish the tolerance at one-tenth part per million, we can register any use that would leave one-tenth part per million, or less. Whenever a residue is involved Food and Drug Administration does come into the picture and must establish the tolerance. We then make our registrations comply with the tolerances which have been set.

Mr. HORAN. Do they hold hearings before they establish tolerance?

Dr. SHAW. Yes, in, I assume, every case; don't they?

Dr. CLARKSON. If the answer is adverse the proponent may request a hearing.

Mr. HORAN. Those hearings are public?

Dr. CLARKSON. The first hearing is an administrative one.

Dr. POPHAM. It may be referred to an advisory committee before they would establish a tolerance, but Food and Drug has full authority for considering all of the toxicological data that the company may bring in or that they may develop in their own laboratories. So they can make a decision on the basis of that information as to the established tolerance, and if so, at what level.

### EFFECT OF INCREASINGLY RIGOROUS REQUIREMENTS ON NUMBER OF AGRICULTURAL CHEMICALS

Dr. BYERLY. The increasingly rigorous requirements under existing law will mean that the expense of development and evaluation of agricultural chemicals by industry will result in development of fewer of them because of the narrow market for some of them. If our minor crops are to be protected, a larger burden will have to be borne by public research institutions, in order to develop the necessary data for their effective and safe use.

I would like to give you a typical example which has come to our attention. In recent years 2,4,5-TP has been used as a growth regulator chemical to prevent drop of apples, prunes, pears, and other deciduous fruits. It is of great importance in preventing premature drop and holding fruit on the trees until the crop can be harvested. It has helped to solve labor problems in harvesting. No substitute is now available or in prospect.

This chemical is not patented. It is available for manufacture and sale by any company. There are seven manufacturers at present. The chemical must now be registered under the recent amendment to the Federal Insecticide, Fungicide, and Rodenticide Act, enacted August 7, 1959, which covers nematocides, plant regulators, defoliants, and desiccants.

One chemical company has filed an application for registration on a no-residue basis. The application has been turned down by the Department because of inadequate data to substantiate the no-residue claim. Because of the small margin of profit, the company has indicated it is unwilling to undertake the additional work needed to substantiate the no-residue basis. A petition has been filed to extend use of the chemical for 1 year, as permitted under the amendment, in the hope a suitable substitute can be developed. Other petitions are expected.

Because of the importance of the problem to growers, it is expected that grower associations will appeal to the Department to undertake research in the next growing season to establish whether a residue remains on the fruit. Informal contacts have already been made.

### INDUSTRY RESEARCH ON PESTICIDES

Mr. WHITTEN. Dr. Byerly, could you, for the record, give us an estimate of the amount of money that is spent by industry in research and in developing these pesticides? You may have to go to other sources.

Dr. BYERLY. I would have to supply that for the record.

Mr. WHITTEN. We would be glad to get some indication of what is involved.

(The requested information follows:)

#### INDUSTRY RESEARCH COSTS TO DEVELOP NEW PESTICIDES

It is estimated that industry will spend $700,000 to $1,500,000 in a 3- to 5-year period before a new pesticide reaches the market. Twelve agricultural chemical companies spend a total of $20 million annually for research on pesticides. The 113 companies in the field spend approximately $30 million a year on research for agricultural chemicals.

Dr. BYERLY. On one chemical, methoxychlor, I have been informed that about a million dollars was spent and registration was not finally effected. This may serve as an estimate per chemical. I have been told that this estimate is conservative.

Mr. WHITTEN. I believe you stated, too, that they already have some problems in that field, in that the chemical companies insist that they are showing much less return for research investment here than they find in other chemical activity.

Dr. BYERLY. That is correct. Some of them are turning to alternate products such as plastics, for example, that have a broader market.

### HISTORY OF CRANBERRY PROBLEM

Mr. WHITTEN. I think perhaps we have gone into this fully enough at this point. I think in the interest of time, since we have discussed it very thoroughly, that I would like to ask you to put in the record

the history of the cranberry problem of last fall, with dates and differences in the course of events.

(The information to be supplied is as follows:)

USE OF AMINOTRIAZOLE ON CRANBERRIES

In November 1959, the Department of Health, Education, and Welfare announced that cranberry and cranberry products produced in Washington and Oregon in 1958 and 1959 were found to be contaminated with aminotriazole, a herbicide which has caused cancer in test animals. The announcement indicated that the Food and Drug Administration of that Department would use its investigative and seizure powers to cope with the problem. The role of the Department of Agriculture in the registration and use of the aminotriazole chemical under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, is as follows:

In March 1956, this Department issued a notice of registration (No. 241-37) for "aminotriazole weedkiller" to be used in the control of weeds in nonfood crop areas. Later applications were received for registering the chemical for use on certain food crops, including cranberries.

In January 1958 the companies applying for the registration of the herbicide for use on cranberries were notified that such use would be acceptable to this Department on the basis that the labels contain specific directions for its use. The first printed label which carried directions for its use on cranberry bogs was registered on April 7, 1958. The stipulated limitations were that application was to be made using a maximum of 8 pounds per acre of the actual chemical, applied 7 to 10 days after the harvest of the current year's crop. Within this use pattern, the chemical presents no hazard to the user and results in no residue appearing in next year's crop. Prior to label registration by this Department in 1958, aminotriazole was proved to be an effective and economical weedkiller when applied after harvest, as specifically directed on the registered label.

By November 1959 the Department of Health, Education, and Welfare had accumulated evidence that certain lots of cranberries contained detectable residues of aminotriazole in violation of the Federal Food, Drug, and Cosmetic Act, as amended. This evidence was based on examination of some 10 lots of cranberries produced in the States of Washington and Oregon. Records collected by the Food and Drug Administration showed that the contamination resulted from misuse of the herbicide, which caused residues to be found. The violation resulted because there is no established residue tolerance or exemption from tolerance for this chemical in or on raw agricultural commodities. However, no residues result if the chemical is properly used according to directions.

The investigations and subsequent seizure of about 0.3 percent of the lots of cranberries tested during the fall of 1959 were independent actions taken by the Department of Health, Education, and Welfare. The Department of Agriculture's role in proper management of aminotriazole is that of registration of adequate labeling of this chemical under the Federal Insecticide, Fungicide, and Rodenticide Act. Adequate labeling means that when a pesticide is used in accordance with the directions on the manufacturer's registered label as to the crop specified, the amount specified, and at the time specified, no hazardous or illegal residues will result.

## CAPITAL NEEDED FOR FARMING

Mr. WHITTEN. We might interrupt this at this point and discuss with Mr. Sherman Johnson the question Mr. Horan raised yesterday.

Mr. Horan, since you raised this question, you might, if you wish, proceed with the questioning of Mr. Johnson.

Mr. HORAN. Yes; if you will permit an observation first.

Out in my hometown, the county agents and people out there have been doing a lot of research on what we might call an economic unit.

You have done some work on that, Dr. Johnson. I wondered if you have a statement now to kind of bring us up to date, to show the impact of mechanization and that kind of thing on what it takes to go into various types of farming. I know there have been changes.

Dr. JOHNSON. Yes. I will be glad to do that, Mr. Horan. I might say that the work you are referring to is a cooperative study between ARS and Washington State University. It is part of the program that I discussed with the committee 2 or 3 years ago, and, as you know, we made a reconnaissance study at that time.

We now have a good many other studies underway. I will get to that a little later if I may, and first get into the question of the capital needed for farming in different parts of the country. Then I will get to the other, if that is all right, Mr. Chairman.

Mr. WHITTEN. Proceed, in that order.

Dr. JOHNSON. Let me pass out these tables.

(The tables referred to follow:)

TABLE 1.—*Investment per worker in manufacturing and agriculture, 1955–59* [1]

| Item | Unit | 1955 | 1956 | 1957 | 1958 | 1959 |
|---|---|---|---|---|---|---|
| All manufacturing corporations: | | | | | | |
| Total assets [2] | Million dollars | 175,065 | 190,086 | 210,856 | 221,534 | 226,049 |
| Total assets excluding cash and Government securities.[2] | do | 147,057 | 159,182 | 183,209 | 194,770 | 198,169 |
| All manufacturing enterprises (including 5-percent adjustment for unincorporated enterprises): | | | | | | |
| Total assets | do | 183,818 | 199,590 | 221,399 | 232,611 | 237,351 |
| Total assets excluding cash and Government securities. | do | 154,410 | 167,141 | 192,369 | 204,508 | 208,077 |
| Average total employment in manufacturing during previous year.[3] | Thousands | 15,995 | 16,557 | 16,903 | 16,782 | 15,468 |
| Average number of production workers in manufacturing during previous year.[3] | do | 12,589 | 13,053 | 13,195 | 12,911 | 11,658 |
| Average investment per employee in manufacturing enterprises: | | | | | | |
| In total assets | Dollars | 11,500 | 12,100 | 13,100 | 13,900 | 15,300 |
| In total assets excluding cash and Government securities. | do | 9,700 | 10,100 | 11,400 | 12,200 | 13,500 |
| Average investment per production worker in manufacturing enterprises: | | | | | | |
| In total assets | do | 14,600 | 15,300 | 16,800 | 18,000 | 20,400 |
| In total assets excluding cash and Government securities. | do | 12,300 | 12,800 | 14,600 | 15,800 | 17,800 |
| Total assets of agriculture, Jan. 1 (excluding assets not used in production).[4] | Million dollars | 121,100 | [5]124,500 | [5]132,000 | [5]140,200 | 155,400 |
| Average number of farmworkers (previous year).[5] | Thousands | 8,639 | 8,364 | 7,820 | 7,577 | 7,525 |
| Average investment per farmworker.[5] | Dollars | 14,000 | 14,900 | 16,900 | 18,500 | 20,700 |

[1] The data on investment per worker in manufacturing are rough estimates and should be used only to indicate general trends. The investment in unincorporated enterprises is not known, and the data on employment in manufacturing excludes proprietors, self-employed workers, and unpaid family workers.
[2] Federal Trade Commission. Book value. Data are for 4th quarter of previous year.
[3] Bureau of Labor Statistics.
[4] U.S. Department of Agriculture.
[5] Revised.

Prepared by Farm Economics Research Division, ARS.

TABLE 2.—*Value of assets used in agricultural production, in current and 1947–49 prices, United States, Jan. 1, 1940–59* [1]

| Year | Value in current prices | | | Value in 1947–49 prices | | |
|---|---|---|---|---|---|---|
| | Total | Average | | Total | Average | |
| | | Per farm-worker [2] | Per farm [2] | | Per farm-worker [2] | Per farm [2] |
| | *Billion dollars* | *Dollars* | *Dollars* | *Billion dollars* | *Dollars* | *Dollars* |
| 1940 | 38.7 | 3,413 | 6,094 | 83.3 | 7,347 | 13,118 |
| 1941 | 39.9 | 3,634 | 6,340 | 84.6 | 7,706 | 13,444 |
| 1942 | 46.2 | 4,330 | 7,449 | 87.3 | 8,183 | 14,076 |
| 1943 | 54.4 | 5,179 | 8,934 | 89.8 | 8,549 | 14,748 |
| 1944 | 62.0 | 5,935 | 10,328 | 90.3 | 8,644 | 15,042 |
| 1945 | 67.7 | 6,625 | 11,346 | 90.1 | 8,817 | 15,100 |
| 1946 | 73.7 | 7,370 | 12,435 | 89.8 | 8,980 | 15,151 |
| 1947 | 83.1 | 8,072 | 14,154 | 90.2 | 8,762 | 15,364 |
| 1948 | 92.3 | 8,890 | 15,906 | 90.0 | 8,678 | 15,509 |
| 1949 | 98.1 | 9,466 | 17,144 | 94.3 | 9,100 | 16,480 |
| 1950 | 95.9 | 9,625 | 16,979 | 95.9 | 9,625 | 16,979 |
| 1951 | 113.1 | 11,394 | 20,434 | 98.2 | 9,893 | 17,742 |
| 1952 | 125.8 | 13,178 | 23,206 | 99.9 | 10,465 | 18,428 |
| 1953 | 121.8 | 13,313 | 22,946 | 100.9 | 11,029 | 19,009 |
| 1954 | 117.5 | 13,256 | 22,592 | 102.1 | 11,519 | 19,631 |
| 1955 | 121.1 | 14,018 | 23,806 | 103.3 | 11,957 | 20,306 |
| 1956 | 124.5 | 14,886 | 25,055 | 104.8 | 12,530 | 21,091 |
| 1957 | 132.0 | 16,880 | 27,183 | 104.5 | 13,363 | 21,520 |
| 1958 | 140.2 | 18,503 | 29,606 | 104.8 | 13,831 | 22,068 |
| 1959 | 155.4 | 20,651 | 33,455 | 107.6 | 14,299 | 23,165 |

[1] Includes farm real estate, less value of dwelling; livestock; machinery and motor vehicles, less 60 percent of the value of automobiles; crop inventories held for livestock feed; and a portion of the dem and deposits determined for each year by adjusting the deposits of Jan. 1, 1942, by an index of production costs.

[2] Number of farms and farmworkers used in computing these averages are as estimated by the U.S. Department of Agriculture.

Source: The Balance Sheet of Agriculture, 1959. A.I.B. No. 214, table 26.
Prepared in Farm Economics Research Division, ARS.

TABLE 3.—*Value of capital per farm, specified types of commercial family operated farms, 1940 and 1959*

| Type of farm | Average value | | Percentage change |
|---|---|---|---|
| | 1940 | 1959 [1] | |
| | *Dollars* | *Dollars* | |
| Dairy farms, central northeast: | | | |
| Total farm capital, Jan. 1 | 9,600 | 38,750 | 304 |
| Land and buildings | 5,300 | 20,550 | 288 |
| Livestock and equipment | 3,400 | 15,430 | 354 |
| Dairy farms, western Wisconsin: | | | |
| Total farm capital, Jan. 1 | 8,420 | 29,340 | 248 |
| Land and buildings | 5,420 | 14,930 | 175 |
| Livestock and equipment | 2,510 | 11,350 | 352 |
| Hog-dairy farms, Corn Belt: | | | |
| Total farm capital, Jan. 1 | 15,440 | 52,830 | 242 |
| Land and buildings | 10,540 | 33,730 | 220 |
| Livestock and equipment | 3,690 | 14,350 | 289 |
| Cash-grain, Corn Belt: | | | |
| Total farm capital, Jan. 1 | 31,470 | 112,280 | 257 |
| Land and buildings | 26,250 | 93,930 | 258 |
| Livestock and equipment | 2,900 | 10,830 | 273 |
| Tobacco-cotton farms (North Carolina): | | | |
| Total farm capital, Jan. 1 | 6,770 | 24,530 | 262 |
| Land and buildings | 5,500 | 20,000 | 264 |
| Livestock and equipment | 1,080 | 3,790 | 251 |
| Cotton farms, southern Piedmont: | | | |
| Total farm capital, Jan. 1 | 4,760 | 20,430 | 329 |
| Land and buildings | 3,670 | 17,010 | 363 |
| Livestock and equipment | 880 | 2,920 | 232 |
| Cotton farms, black prairie: | | | |
| Total farm capital, Jan. 1 | 8,820 | 34,210 | 288 |
| Land and buildings | 7,240 | 28,420 | 293 |
| Livestock and equipment | 1,320 | 5,320 | 303 |
| Cotton farms, high plains: [2] | | | |
| Total farm capital, Jan. 1 | 12,540 | 58,740 | 368 |
| Land and buildings | 9,940 | 49,920 | 402 |
| Livestock and equipment | 2,180 | 8,330 | 282 |
| Spring wheat farms, northern plains: [3] | | | |
| Total farm capital, Jan. 1 | 10,830 | 57,610 | 432 |
| Land and buildings | 7,230 | 33,980 | 370 |
| Livestock and equipment | 2,710 | 16,840 | 521 |
| Winter wheat farms, southern plains: | | | |
| Total farm capital, Jan. 1 | 18,780 | 95,940 | 411 |
| Land and buildings | 16,010 | 74,540 | 366 |
| Livestock and equipment | 2,410 | 16,680 | 592 |
| Cattle ranches, intermountain region: | | | |
| Total farm capital, Jan. 1 | 30,000 | 89,920 | 200 |
| Land and buildings | 14,560 | 33,270 | 129 |
| Livestock and equipment | 14,490 | 52,850 | 265 |

[1] Preliminary.
[2] Nonirrigated farms.
[3] Wheat, small-grain livestock farms.

Prepared in Farm Economics Research Division, ARS.

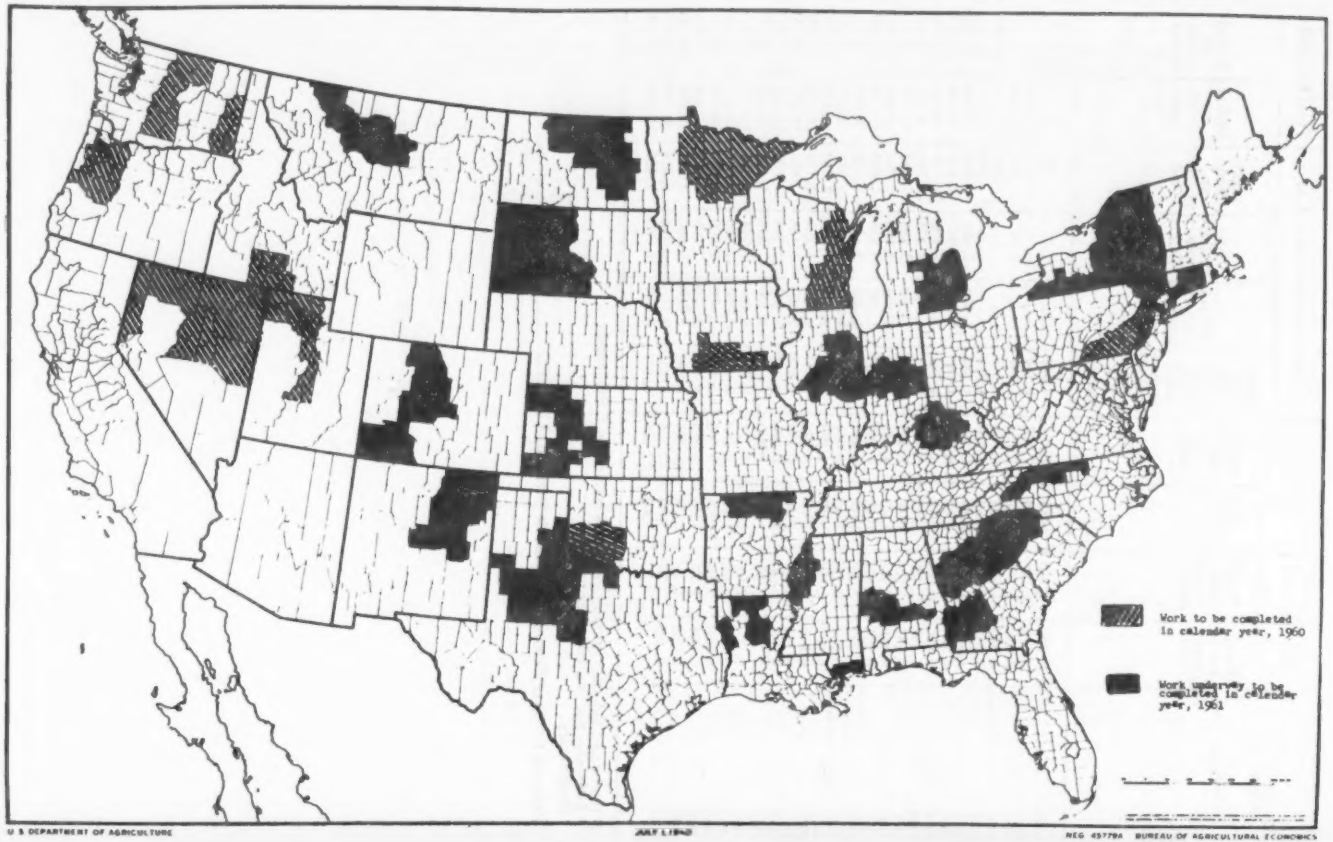
TABLE 4.—*Farm debt: Amount outstanding, by type, United States, Jan. 1, 1910–60*

[Dollar amount in millions]

| Year | Farm mortgage debt | Non-real estate debt [1] | Year | Farm mortgage debt | Non-real estate farm debt | | | | Total farm debt | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Banks and federally sponsored lenders (excluding CCC loans) | Miscellaneous lenders [2] | Total excluding CCC loans | Loans made and guaranteed by CCC | Excluding CCC loans | Including CCC loans |
| 1910 | 3,208 | 1,350 | 1935 | 7,584 | 947 | ---- | ---- | 250 | ---- | ---- |
| 1911 | 3,522 | 1,338 | 1936 | 7,423 | 1,154 | ---- | ---- | 280 | ---- | ---- |
| 1912 | 3,930 | 1,380 | 1937 | 7,154 | 1,087 | ---- | ---- | 205 | ---- | ---- |
| 1913 | 4,348 | 1,520 | 1938 | 6,955 | 1,165 | ---- | ---- | 313 | ---- | ---- |
| 1914 | 4,707 | 1,597 | 1939 | 6,779 | 1,319 | ---- | ---- | 630 | ---- | ---- |
| 1915 | 4,991 | 1,606 | 1940 | 6,586 | 1,504 | 1,500 | 3,004 | 445 | 9,590 | 10,035 |
| 1916 | 5,256 | 1,748 | 1941 | 6,494 | 1,647 | 1,700 | 3,347 | 629 | 9,841 | 10,470 |
| 1917 | 5,826 | 2,034 | 1942 | 6,376 | 1,782 | 1,700 | 3,482 | 610 | 9,858 | 10,468 |
| 1918 | 6,537 | 2,489 | 1943 | 5,956 | 1,671 | 1,500 | 3,171 | 773 | 9,127 | 9,900 |
| 1919 | 7,137 | 2,665 | 1944 | 5,396 | 1,686 | 1,200 | 2,886 | 589 | 8,282 | 8,871 |
| 1920 | 8,449 | 3,455 | 1945 | 4,941 | 1,620 | 1,100 | 2,720 | 683 | 7,661 | 8,344 |
| 1921 | 10,221 | 3,871 | 1946 | 4,760 | 1,668 | 1,200 | 2,868 | 277 | 7,628 | 7,905 |
| 1922 | 10,702 | 3,303 | 1947 | 4,897 | 1,951 | 1,500 | 3,451 | 65 | 8,348 | 8,413 |
| 1923 | 10,786 | 3,138 | 1948 | 5,064 | 2,290 | 1,800 | 4,090 | 84 | 9,154 | 9,238 |
| 1924 | 10,665 | 2,986 | 1949 | 5,288 | 2,710 | 2,200 | 4,910 | 1,152 | 10,198 | 11,350 |
| 1925 | 9,913 | 2,713 | 1950 | 5,579 | 2,834 | 2,400 | 5,234 | 1,723 | 10,813 | 12,536 |
| 1926 | 9,713 | 2,735 | 1951 | 6,118 | 3,366 | 2,800 | 6,166 | 817 | 12,284 | 13,101 |
| 1927 | 9,658 | 2,613 | 1952 | 6,676 | 4,063 | 3,200 | 7,263 | 596 | 13,939 | 13,535 |
| 1928 | 9,757 | 2,597 | 1953 | 7,263 | 4,215 | 3,400 | 7,615 | 1,193 | 14,878 | 16,071 |
| 1929 | 9,757 | 2,643 | 1954 | 7,772 | 3,744 | 3,200 | 6,944 | 2,401 | 14,716 | 17,117 |
| 1930 | 9,631 | 2,546 | 1955 | 8,289 | 3,986 | 3,300 | 7,286 | 2,233 | 15,575 | 17,808 |
| 1931 | 9,398 | 2,180 | 1956 | 9,066 | 4,420 | 3,500 | 7,920 | 1,882 | 16,986 | 18,868 |
| 1932 | 9,094 | 1,772 | 1957 | 9,908 | 4,470 | 3,500 | 7,970 | 1,575 | 17,878 | 19,453 |
| 1933 | 8,466 | 1,467 | 1958 | 10,507 | 4,994 | 3,500 | 8,494 | 1,226 | 19,001 | 20,227 |
| 1934 | 7,685 | 1,209 | 1959 | 11,254 | 5,765 | 3,700 | 9,465 | 2,488 | 20,719 | 23,207 |
| | | | [3] 1960 | 12,000 | 6,700 | 3,900 | 10,600 | 1,400 | 22,600 | 24,000 |

[1] Banks and federally sponsored lenders (excluding CCC loans).
[2] Estimates not available before 1940.
[3] Preliminary.

Prepared in Farm Economics Research Division, ARS.


Work to be completed in calendar year, 1960
Work underway to be completed in calendar year, 1961
U S DEPARTMENT OF AGRICULTURE
JULY 1960
NEG 45779M BUREAU OF AGRICULTURAL ECONOMICS

Dr. JOHNSON. I will go through them very briefly, but I brought them because I understood you were interested in the question of the cost of getting started in farming. Let me say, first of all that, of course, farming these days is a high capital-using enterprise.

In table 1, I call your attention to two figures in the column for 1959. The sixth figure from the bottom, "Average investment per employee in manufacturing enterprises, total assets, exclusive of cash and Government securities," is $13,500; and then the bottom figure for the 1959 column, "Average investment per farmworker," is $20,700; so that you see the amount of capital in agriculture exceeds the average in manufacturing. That does not mean that you do not have some manufacturing enterprises which use much more capital.

Now, then, table 2 gives the value of assets used in agricultural production over a period of years beginning with 1940 and it gives it in current prices as well as in constant prices—that is, 1947–49 prices—and it gives the value of assets per farmworker as that first table did in the last line.

Mr. WHITTEN. Mr. Johnson, I do not mean to interrupt, but I do so because I think "assets" is a misnomer in this kind of thing. I think "investment required" is much more appropriate because these "assets" cannot be disposed of and cash realized, and still stay in the farming business. They might be termed "net worth" if he owns it; "investment required" would be, in my judgment, more appropriate; but certainly "assets" are not usable.

Dr. JOHNSON. Many of the assets are not transferrable.

Mr. WHITTEN. Not if the producer is to stay in the farming business. "Investment required" would be more appropriate. I am not trying to get you to buy my words, but I did not want to let this "assets" go without pointing out what is involved here.

Dr. JOHNSON. That is all right, Mr. Chairman. I would say a good many of the assets in agriculture are sunk assets.

Of course, the 1959 figure per farmworker is the same as in the first table, except that it was rounded in the first table. The per farm figure for 1959 is $33,455. These are averages for the entire country.

Then table 3: The term used here is just a little different, Mr. Chairman—"value of capital per farm" for these different types of commercial farms. We have discussed those in times past and you will notice at the top of the page the average value, 1940 and 1959, and then the percentage increase between those 2 years.

Mr. WHITTEN. May I interrupt again, Dr. Johnson, to raise this question? I am not saying that we have gone too far in protecting the public in the health requirements incident to dairying, but does the record not show that much of this increase that is now required in dairying particularly, and perhaps a little with regard to some others here, comes from a constantly increasing requirement by State health departments for facilities required to meet standards, et cetera?

Dr. JOHNSON. Quite a little of it does. I couldn't give you offhand the percentage.

Mr. WHITTEN. It is a considerable factor?

Dr. JOHNSON. Certainly, it is a considerable factor if you are producing grade A milk. Of course, that is what the dairy farmers in the Central Northeast are doing. You will notice that the average

investment in the two dairy farm areas are: Western Wisconsin, $29,000; and $39,000 in the Central Northeast, rounding the figures.

Now, then, moving to the Corn Belt, the hog-dairy farms are smaller than the cash grain farms. The average 1959 investment for hog-dairy farms is roughly $53,000. The investment is $112,000 for the cash grain farms. For the tobacco-cotton farms in North Carolina, you get down to a much lower investment, $24,500; but, of course, there is much more labor involved so that you have as between the two parts of the country a substitution of labor for capital or vice versa. The same is true of the cotton farms. I shall not go down the line further unless there are questions.

Let me turn to table 4, which shows the amount of farm debt over the years. These are totals of outstanding debt by type for the country as a whole. You will notice that as of the 1st of January 1960, the preliminary estimate was about $12 billion of farm mortgage debt and $10.6 billion of non-real-estate debt—excluding CCC loans. Both are at an alltime record.

Now, then, Mr. Chairman, I would like to turn to the map that is attached to the tables. This map, Mr. Horan, shows the studies that we have underway that are somewhat comparable to the studies that were reported in Agriculture Information Bulletin 180. They will be done much more thoroughly than we had time to do in that bulletin, and for that reason I do not have today any of these studies to report on to you; but the studies are underway and you will notice the two legends on the map. The crosshatched areas are those where the work is to be completed in calendar year 1960, and the black are the areas with work underway to be completed in calendar year 1961.

You will notice there are two areas in the State of Washington. One of them is the apple area, to which I believe you referred the other day. Last fall Mr. Earl Franklin, of ARS, and Dr. C. H. Zuroske, of the Washington State University, were in your area making this study and they were interviewing the county agent, operators of apple-packing plants, applegrowers, and other people, trying to obtain this type of information.

Mr. HORAN. It was rather interesting because some of this work was going on in one room and next door we were having a meeting with the Farmers Home Administration advisory group, trying to determine where the limitation on the total amount of a farmer's loan should be placed. This kind of research, Mr. Chairman, is rather valuable when you have to have a benchmark to go by.

Mr. WHITTEN. I do not believe you made clear here what is involved in this map. You and Mr. Horan understood it. I think it was prepared at his earlier suggestion. Do I understand this is work you are doing to determine what an economic unit is?

### RELATION OF CAPITAL INVESTMENT TO FARM INCOME

Dr. JOHNSON. Mr. Chairman, it is a little different than that, although we will, in the studies that are underway now, have some fairly good answers as to what constitutes an economic unit.

Mr. WHITTEN. Let me ask it this way: What does this study consist of? I ask it in the affirmative.

Dr. JOHNSON. Agriculture Information Bulletin 180 to which I referred, is a study of several areas, and somewhat similar to the ones

that are on the map, but in the study that has been published we tried to determine the land, labor, machinery, and other capital that would be needed if a farm operator was to obtain a net income for his labor and management of $2,500, and also how much additional capital investment and other resources would be involved if the farm operator was to obtain a $3,500 income, after getting a return on the investment.

In the studies that are now underway we also have the $2,500 and $3,500 figures. But then we add $4,500 and $5,500, so that by studying what is involved in the way of capital investment and labor to get each of those dollar returns to the operator we will have these different points on the curve, and we will be able to show whether there is any advantage in increasing the size of farm from the standpoint of efficiency.

Mr. WHITTEN. In this connection wouldn't your study also show the size operation that a farmer would have to carry on successfully to reach that? By "that" I mean will you also show the annual outlay or investment in a particular year's crops, the gross handled?

Dr. JOHNSON. Oh, yes.

Mr. WHITTEN. So that you can see the relatively low income that the man will have to be operating a business, with all the weather hazards and all the other hazards involved in it as well? Will you show that relationship?

Dr. JOHNSON. It will show the gross income, the expenses, and the net income, the acres of land that would have to be operated in each area, the acres in crops, the capital investment; and if it is a dairy farm, the number of cows.

Mr. WHITTEN. If this study shows the facts that you already have in Bulletin 180, don't you anticipate that we are likely to have fewer students at agricultural colleges studying agriculture than we have now? May I say we have relatively few now, other than those who plan to inherit a farm. I think that is a matter of record. We need facts. I am not trying to take issue with getting the facts, but what I am trying to say, the picture as you can see it now is not going to be one that will offer a whole lot of incentive for ambitions in that direction by a boy or young man who does not have in sight a considerable amount of capital?

Dr. JOHNSON. I would say this: It has been true for a long time, but I think it is becoming more true that agriculture by and large is a heritable occupation. In other words, unless you inherit a farm or marry it, it is pretty hard to get the capital. The unusual man can do it.

Mr. WHITTEN. That just about excludes everybody on our subcommittee. We are already married and if we weren't, we are too old to have any hopes to marry somebody with a farm. I guess we have already had our kinfolks picked out. I guess our subcommittee will have to stick to some other vocation.

Dr. JOHNSON. It excludes me, too, Mr. Chairman.

Mr. HORAN. There was a time when we all thought we were married to our farms. At least we said. "With all my worldly goods I do thee endow," and still went broke.

Will you be able to apply the law of diminishing returns to these studies?

Dr. JOHNSON. We will be able to apply some aspects of the law of diminishing returns.

Mr. HORAN. Return to the family-sized farmer?

Dr. JOHNSON. That is what I was referring to when I said that if we get this curve of what it takes to get an operator's income of $2,500, $3,500, $4,500, $5,500, we will be able to determine whether one of those sizes is more efficient than the other. That is, from the standpoint of use of resources.

Mr. HORAN. That is very interesting, Mr. Chairman. I think it is a needed study in terms of what we try to do in other sections of our bill.

Mr. WHITTEN. I think your statement has been very much worthwhile and I think the study is very good, indeed. I rather suspect that the young men at that age where they might consider whether to go into farming or not, probably knowing about this from hearsay, it may not be so essential to them. I do think it will lead to an appreciation by the American public of what is involved and perhaps generate a little more sympathetic attitude toward this industry, on which we are all dependent for our food and fiber, and actually our living.

Dr. JOHNSON. We are looking for facts, Mr. Chairman. My own personal opinion of course is that the more American citizens realize that we need a prosperous agriculture for the benefit of the economy as a whole and for the entire world as far as that is concerned, the better it is.

Mr. WHITTEN. We are certainly in accord with you and wish to thank you.

Are there further questions?

TREND IN FARM VALUES

Mr. NATCHER. Dr. Johnson, do you see any change as far as the future is concerned from the standpoint of a depreciation in overall farmland valuation? In your opinion, what is going to happen as far as the future is concerned, keeping in mind air ports, interstate highways, city limits lines joining and all of the other developments that we have at this time?

Dr. JOHNSON. Well, of course if you have land that is located in such a way that it is wanted for an airport site, an industrial site, or a road site, I don't know what the trend is going to be, but I would suggest that the trend probably will be unward because of the increased population and the increased industrial activity.

Our last land value survey indicated very considerable slackening in the upward trend of values for agricultural land, and the reports that we get from the field indicate even more slackening in recent weeks than when the last survey was made. Now, when I say that, I am talking about agricultural land. I am not talking about suburban land but, except in the areas that have a great deal of urban influence, there seems to be quite a slackening of land values at the present time.

Mr. NATCHER. In traveling at night by air, Dr. Johnson, as you well know, you are surprised when you follow the lights. It seems that the towns and cities are all joining.

Dr. JOHNSON. Yes.

Mr. NATCHER. They have a study underway at the present time here in the District of Columbia for a dividing line between the city of

Washington and Baltimore. It is a right serious problem, much more so than a lot of people in the United States believe.

Dr. JOHNSON. No question about it.

Mr. NATCHER. I was just wondering as far as overall farmland values are concerned, if you see any decrease in value. It seems to me that they go higher instead of lower.

Dr. JOHNSON. Of course, there have been a good many investors in farmlands in recent years, nonfarmers who have made their money in other occupations, who apparently have felt that land values would go higher. That has been one of the factors pushing up farmland.

Now, let me emphasize again that I think you have to distinguish between the suburban areas and the strictly farming areas.

Mr. NATCHER. Thank you, sir. I certainly enjoyed your statement.

Mr. WHITTEN. Further questions?

If not, thank you, Dr. Johnson.

Dr. JOHNSON. Thank you.

Mr. WHITTEN. Let us pass on this other subject. I notice you ask increases for "Utilization research on grains," and several others.

## UTILIZATION RESEARCH ON GRAINS, COTTON, AND ANIMAL FATS

We would like to have you discuss the proposed increases for utilization research on grains, cotton, animal fats. You might give it to us in that order or such order as you wish, Dr. Irving.

Dr. IRVING. Thank you very much. We would like to say before we start on specific items that we continue in our utilization research and development area to emphasize research on the development of new uses with the objective of expanding markets for crops and particularly those in surplus.

We continue to emphasize, as we have discussed with you in years past, the development of industrial uses, that is, nonfood uses because we feel that in such industrial uses lies the greatest opportunity for use of substantial quantities of these crops.

### PROGRESS OF PROGRAM

On pages 67 to 71 of the explanatory notes are some examples of recent progress.

Mr. WHITTEN. I think we might have those included in the record at this point.

(The pages referred to are as follows:)

### UTILIZATION RESEARCH AND DEVELOPMENT

#### CURRENT ACTIVITIES

Investigations are conducted in the field of chemistry and related physical and biological sciences to develop industrial chemicals, new and improved foods, feeds, drugs, fabrics, and other products from agricultural commodities. New methods for evaluating the suitability of commodities for processing, and improved processing methods are devised and tested. Ways are sought to increase the use of byproducts. The purpose is to effect maximum utilization of agricultural commodities.

#### SELECTED EXAMPLES OF RECENT PROGRESS

1. *Industrial uses of corn expanded.*—Cooperative efforts by chemists, corn breeders, and industry have resulted in two companies producing 250,000 pounds

of high-amylose cornstarch from the 1958 crop of a new hybrid, high amylose corn. This new starch contains 55 to 60 percent amylose, the component of starch with properties that make it attractive for industrial uses. Production of this new starch in semicommercial quantity has made possible its extensive evaluation for industrial application as paper additives, textile sizes, adhesives, and packaging films. Finding of an 80 percent amylose corn has stimulated research efforts to develop a series of "tailored" corns containing high-amylose starches for industrial needs.

Two industrial companies are now producing semicommercial quantities of dialdehyde starch from corn and are planning expansion. Both companies are using the Department's improved two stage electrolytic process, which simplified manufacture and reduced production costs. Research has demonstrated usefulness of dialdehyde starch in leather tanning and as an agent for producing wet-strength paper. Other promising outlets include adhesives and binders, oil-well drilling additives, gelating conditioners and film-hardeners, textile processing aids, and as a chemical intermediate. The unusually high response to advertisements and announcements of the availability of the commercial products indicates extensive use-research by industry for applications of this new material, and potentially larger markets than anticipated.

Zein, a protein component of corn, has been chemically modified to produce a water-soluble product having a variety of industrial uses. The major manufacturers of zein has adopted this new process and has reported wide commercial acceptance of the product. Water-soluble zein produces hard, tough, grease-resistant films that are desired in a variety of applications. Industrial uses are in rubless floor polishes, adhesives, printing inks, leather finishes, films and protective coatings, pharmaceuticals, and cosmetics. The new product offers promise of greatly expanding outlets for this corn protein.

A survey of microorganisms capable of transforming corn sugar into new substances has resulted in the development of a soluble gum called phosphomannan. It is readily soluble in water to give clear viscous solutions. Extensive evaluation by over 30 companies, 4 of which are studying it from the production viewpoint, reveal uses in foods, pharmaceuticals, cosmetics, paper, and other applications as a thickening, stabilizing, dispersing, and suspending agent.

2. *Use of frozen bakery products increases.*—Over 60 percent of the Nation's bakeries have installed freezing facilities. Department research has provided basic information on the effect of temperature, air velocity, and relative humidity on freezing and thawing rates, and on the stability of frozen bakery products during and subsequent to processing. It has been found that bread and other bakery items each must be handled according to individual requirements. Freezing leads to greater plant efficiency and economy of production by eliminating peakloads with consequent reduction of overtime. At the same time, better products are available to the housewife. This new processing procedure provides fresher, tastier, baked goods for consumers.

3. *Stabilization of dehydrated alfalfa commercialized.*—A practical method of stabilizing the nutrient value of dehydrated alfalfa and other forages has been developed. The principal value of dehydrated forages as ingredients of mixed feeds is dependent on their content of provitamin A (beta-carotene), vitamin E, and xanthophyll. Unfortunately, when the forage is stored for winter use these valuable components are rapidly destroyed by natural oxidation. Of several hundred chemicals screened as stabilizing agents for these components, one, sold under the trade name of Santoquin, was found to be effective. Applied at a rate of about one-half pound per ton and at a cost of not over $1, about three-fourths of the unstable nutrients are retained over a storage period of 6 months as compared to a one-fourth retention for untreated forage stored under the same conditions. Forty alfalfa dehydrating companies, representing a large proportion of dehydrated alfalfa production capacity, have been granted licenses to use this development under the Department's public service patent.

4. *Radically new method of carding cotton shows great promise.*—The textile industry has enthusiastically responded to the announcement in April 1959 of a major modification made in the cotton carding machine to improve its operation. This modification, which is the only major change made in the carding machine since its invention 200 years ago, effects a significant reduction in manufacturing costs. This is accomplished by replacing cumbersome wire combs with a lighter weight, granulated metal surface. Commercial mill tests show a saving of much of the spinnable cotton fibers normally removed as waste by the conventional carding machine. Ten firms are already licensed to produce the equipment now

known as the SRRL granular card; about 20 industrial installations have been made.

5. *Improved flame retardant finish for cotton meets requirements of Army Quartermaster Corps.*—A new flame retardant, APO–THPC, developed in cooperation with the Quartermaster Corps, is superior to other flame retardants for cotton. Fabrics treated with APO–THPC are not only resistant to burning, but also resist shrinkage, mildew, rot and wrinkling. The treated fabric retains these properties after repeated laundering and dry cleaning. The Army Quartermaster Corps considers that the APO–THPC flame retardant finish meets its current requirements for a satisfactory flame retardant on cotton fabric for certain military uses. A textile mill, which has made successful pilot plant applications of APO–THPC to various fabrics, plans a large run on work clothing fabrics for civilian use.

6. *Citrus protected from mold infestation.*—Nearly all citrus fruit being sold domestically or shipped to overseas markets is now treated with biphenyl, a mold retardant. Safety of this product has been established through cooperative research between the Agricultural Research Service, Agricultural Marketing Service, State experiment stations, and the citrus industry. The minimum concentration of biphenyl required for adequate protection has been defined, procedures developed for its application, and it has been demonstrated clearly that its use results in no health hazard.

This treatment almost eliminates losses due to spoilage by molds during storage and transit. These losses, once as high as 50 percent in export shipment and 15 percent in domestic shipment, formerly cost the citrus industry several million dollars each year. This development has resulted in expansion of existing oversea markets and is opening up entirely new markets which formerly could not be reached because of excessive spoilage during transit.

7. *Plastic foams made from modified castor oil.*—An economical chemical process for altering the properties of castor oil extends the potential usefulness of castor oil in the manufacture of types of lightweight plastics known as urethane foams. Foamed plastics made with this chemically modified castor oil possess distinctly improved water resistance and shrinkage characteristics. Excessive water absorption is one of the major limitations of urethane foams generally. Urethane foams are being used in increasing quantities for upholstering materials, thermal and acoustical insulation, foamed-in-place crash pads, lightweight structural materials, and numerous specialty products. Approximately a million pounds of unmodified castor oil were used in 1958 to produce urethane foams. Development of this economical process for producing foams with significantly improved properties provides a potentially greater use of castor oil in this rapidly expanding industry.

8. *New chemical from turpentine used in the production of synthetic rubber.*—Turpentine can be transformed into excellent catalysts or initiators (peroxides) for the manufacture of "cold rubber". Both the product and the process are protected by patents assigned to the Secretary of Agriculture. Licenses have been issued for the use of these patents to large chemical and rubber manufacturers. About 2 million pounds of peroxides are currently used per year in the production of synthetic rubber. It is estimated that 90 percent of the current annual production of 500,000 to 600,000 tons of GRS (Government rubber styrene) tread stock "cold rubber" is made with the peroxide initiators described in the Department patents.

9. *New vegetable oils of industrial interest discovered.*—Cooperative research between the Department and the agricultural experiment stations on the chemical screening of new plants has resulted in the discovery of seeds containing oils of unusual composition. Of a total of 1,037 seed samples analyzed, representing 655 plant species, 151 contain unusual types of oil. Four different classes of these new oils with properties different from those now produced domestically offer promise for industrial applications not competitive with presently produced domestic oils. These four classes of oils are undergoing developmental studies. Seeds from which these oils were obtained are produced by hardy plants that can quite likely be developed into commercial crops.

10. *Factors controlling juiciness of meat elucidated.*—Juiciness is one of the most important factors affecting the quality of meat, and retention of juiciness in processed meat is of primary importance. Research conducted on the comparative composition of a number of different beef muscles has shown that increased zinc or sodium content improves juice retention, while increased amounts of calcium, magnesium, and hydrogen ions tend to reduce juice retention. It was found further that variation in juice retention in beef muscle varied in-

versely with the original carbohydrate reserve of the muscle tissue. This fundamental information is essential in devising better methods of utilizing carcasses for meat processing and improvement of processing techniques generally.

11. *Industrial uses of animal fats expanded.*—As a result of the Department's research, epoxidized fats and oils have been finding a growing outlet as stabilizing plasticizers for use in vinyl plastics. These products are now being manufactured at a rate requiring about 40 million pounds of fats per year. Eventual domestic use of as much as 200 million pounds of epoxidized fats annually is forecast by some industrial authorities.

REPORT TO SENATE ON UTILIZATION RESEARCH

Dr. IRVING. We might mention also, in connection with progress reports, the summary report on utilization research which Mr. Peterson mentioned to you yesterday—a report submitted to the Senate Committee on Appropriations at their request. I have several copies of it here available for you if you would like to have them.

You will note in this report that we have indicated some 40 accomplishments in utilization research and development during the fiscal year which this report covers; that we have redirected some research to problems that we consider at the moment to be more important than those that we have been working on. We have discontinued 131 projects and initiated 132 new ones, with emphasis on industrial uses.

The report also indicates that in utilization research we have published 493 papers in technical journals, made more than 500 technical talks, issued 96 patents, have conducted or participated in 40 exhibits of our accomplishments, including a motion-picture film and have issued 145 press releases on developments issuing from our laboratories.

Mr. WHITTEN. Doctor, in view of that, what have you been doing with your spare time?

Dr. IRVING. It means, Mr. Chairman, that about three times every day there is something issuing from our laboratories to indicate achievement or accomplishment.

A second item which bears upon the subject of progress is this bulletin which has been numbered Agricultural Information Bulletin No. 209 and titled "New Uses for Farm Products." This was issued about 8 months ago in connection with an exhibit, covering utilization research and development progress, in the patio of the Department of Agriculture. It has been since used in several other places throughout the country. Finally, we have a year-end release indicating progress and prospects in utilization research in calendar year 1959.

Mr. WHITTEN. Dr. Irving, this is all very interesting. Sometimes I think we all write so much we have little time to read and study, but we will try to find time to appreciate what you have here. We are interested.

PUBLIC SERVICE PATENTS

Dr. IRVING. You have been interested in the past, Mr. Chairman, in a list of our patents, the public service patents issued to the Department, as a result of utilization research and development.

I have here a list of patents for calendar year 1959—99 patents that have been assigned to the Secretary of Agriculture.

Mr. WHITTEN. We should be glad to have this information included in the record at this point.

(The information referred to is as follows:)

## UTILIZATION RESEARCH AND DEVELOPMENT PATENTS ISSUED, CALENDAR YEAR 1959

| Patent | Patent No. | Date of issue |
|---|---|---|
| Synthetic detergent bar compositions | 2,867,586 | Jan. 6, 1959 |
| Fiber cleaner | 2,867,850 | Jan. 13, 1959 |
| Terpene phenoxyacetate growth regulators | 2,868,634 | Do. |
| Tanning with epoxy resins | 2,869,970 | Jan. 20, 1959 |
| Shrinkproofing textiles with volatile polyamines and epoxides | 2,869,971 | Do. |
| Flame resistant organic textiles and method of production | 2,870,042 | Do. |
| Process for conversion of steroidal sapogenins to pseudosapogenins | 2,870,143 | Do. |
| Detoxifying cottonseed meal | 2,873,190 | Feb. 10, 1959 |
| Preparation of cottonseed meal suitable for unrestricted use in laying hen diets | 2,873,191 | Do. |
| Processing of sugar beets | 2,873,220 | Do. |
| Alkyl esters of alkoxy-acyloxy stearic acid | 2,873,255 | Do. |
| Vial holder | 2,873,850 | Feb. 17, 1959 |
| Method of preserving apples | 2,874,059 | Do. |
| Process for making fatty acid diglyceride, diesters of dibasic acids | 2,874,175 | Do. |
| Method and apparatus for packaging powders and the like | 2,875,070 | Feb. 24, 1959 |
| Apparatus for treating particulate material with gaseous media | 2,876,558 | Mar. 10, 1959 |
| Release agents for pressure-sensitive adhesives | 2,876,895 | Do. |
| Carding apparatus | 2,879,549 | Mar. 31, 1959 |
| Process of tanning hides with polymethoxyaldehyde compounds and optionally vegetable tanning | 2,880,053 | Do. |
| Process for reacting wool with organic diisocyanates in the presence of a tertiary amine | 2,880,054 | Do. |
| Process for enhancing flavor of maple syrup | 2,880,094 | Do. |
| Preparation of starch-bisulphite addition products | 2,880,236 | Do. |
| Process for reacting protein fibers with dicarboxylic acid diazides and products produced thereby | 2,881,046 | Apr. 7, 1959 |
| Heat exchanger | 2,882,022 | Apr. 14, 1959 |
| Process for conversion of 3$\beta$, 17$\alpha$-dihydroxy-5-pregnene-11,20-dione to cortisone acetate | 2,883,403 | Apr. 21, 1959 |
| Paint vehicle with fungicidal properties | 2,884,330 | Apr. 28, 1959 |
| Synthesis of coumestrol and its esters | 2,884,427 | Do. |
| Purification of canaigre tannin extracts | 2,885,325 | May 5, 1959 |
| Preparation of partial glycerides | 2,885,414 | Do. |
| Process for freeze-drying of milk | 2,885,788 | May 12, 1959 |
| Tanning with periodate oxypolysaccharides | 2,886,401 | Do. |
| Shrinkproofing textiles with polyepoxides and ammonia | 2,886,402 | Do. |
| Phosphorus containing aziridinyl-alcohol polymers and flame resistant organic textiles | 2,886,538 | Do. |
| Aziridine-methylolphosphorus polymers and flame resistant organic textiles | 2,886,539 | Do. |
| Process for preventing yellowing of wool | 2,888,315 | May 26,1959 |
| Process for retaining softness in bakery products | 2,889,227 | June 2,1959 |
| Phosphorus containing aziridinyl-amine polymers and flame resistant organic textiles | 2,889,289 | Do. |
| Coating compositions | 2,889,309 | Do. |
| Isolation of furocoumarins | 2,889,337 | Do. |
| Separation of fumaropimaric acid from fumaric-modified rosin products | 2,889,362 | Do. |
| Sealing device | 2,889,673 | June 9, 1959 |
| Shrinkproofing textiles with polyamides and volatile polyepoxides | 2,890,097 | Do. |
| Estrogenic factor | 2,890,116 | Do. |
| Inactivation of enzymes in plant tissue | 2,890,120 | Do. |
| Process of purification of pelargonic acid | 2,890,230 | Do. |
| S-(1,2-dichlorovinyl)-cysteine and method for its preparation | 2,890,246 | Do. |
| Shrinkproofing of wool with chromium complexes | 2,890,926 | June 16, 1959 |
| Method for the production of carotenes | 2,890,989 | Do. |
| Flame resistant organic textiles and method of production | 2,891,877 | June 23, 1959 |
| Separation of nitrogenous organic compounds | 2,891,945 | Do. |
| Composition comprising nitrilo methylol-phosphorus-polymer and organic textiles flame-proofed therewith | 2,892,803 | June 30, 1959 |
| Etherification of the 7-hydroxyl group in polyhydroxy flavonoids | 2,892,845 | Do. |
| Preparation of 7-benzyl ethers of flavonoid compounds | 2,892,846 | Do. |
| (Alkylthio)-, (acetylthio)-, and (arylthio)-undecanoic acids | 2,892,852 | Do. |
| (Alkyl and aryl sulfinyl)- and (alkyl and aryl sulfonyl)- undecanoic acids | 2,892,853 | Do. |
| Self-feeding and self-doffing opener-cleaner for textile fibers | 2,893,064 | July 7, 1959 |
| Dicarboxyl starches and method of preparation | 2,894,945 | July 14, 1959 |
| Oxidation of pseudosapogenins | 2,894,962 | Do. |
| Preparation for bulky textiles | 2,895,286 | July 21, 1959 |
| Process for making maple product of intensified maple flavor | 2,895,833 | Do. |
| Method for preparing unsulphured dehydrated fruit | 2,895,836 | Do. |
| Process of purification of partially hydrolyzed steroidal saponins | 2,895,953 | Do. |
| Purification of coumestrol | 2,895,964 | Do. |
| Monoglyceride diacetates | 2,895,966 | Do. |
| Process for clarifying aqueous suint bath containing grease and scouring wool with the purified bath | 2,897,043 | July 28, 1959 |
| Process of dehydrating biological materials | 2,897,600 | Aug. 4, 1959 |
| Procedure for preparing canned rice | 2,898,214 | Do. |
| Method of canning rice | 2,898,215 | Do. |
| Heat treatment of sugar beet juice | 2,898,245 | Do. |
| Epoxidized diacetoglycerides | 2,898,348 | Do. |
| Process for preparing a solid flavoring composition | 2,899,313 | Aug. 11, 1959 |
| Dehydration of cherries | 2,899,319 | Do. |

| Patent | Patent No. | Date of issue |
|---|---|---|
| 11-keto diosgenin | 2,899,428 | Aug. 11, 1959 |
| Preparation of oxygenated resin acid derivatives | 2,899,463 | Do. |
| Process for preparing hydroxyalkylated cereal flour | 2,900,268 | Aug. 18, 1959 |
| Production of nonwoven fabrics | 2,900,291 | Do. |
| Polymers made from 1-aziridinyl phosphine oxides and sulfides and flame resistant organic textiles | 2,901,444 | Aug. 25, 1959 |
| Coating compositions | 2,901,469 | Do. |
| Addition products of fatty acids and unsaturated nitro compounds | 2,901,495 | Do. |
| Packaged honey and method of packaging same | 2,902,370 | Sept. 1, 1959 |
| Method for preparing pregnenones | 2,902,496 | Do. |
| Treatment of wool scouring waste | 2,903,424 | Sept. 8, 1959 |
| Process for preparing a solid flavoring composition | 2,904,440 | Sept. 15, 1959 |
| Means for detecting enzyme activity | 2,905,594 | Sept. 22, 1959 |
| Flame- and crease-resistant textiles from aziridinyl carboxyalkylcellulose | 2,906,592 | Sept. 29, 1959 |
| Production of growth-stimulating agents | 2,906,622 | Do. |
| Method of conducting microbial counts | 2,906,672 | Do. |
| Process for dehydrating liquid foodstuffs with preservation of volatile flavors | 2,906,630 | Do. |
| Production of dextran | 2,906,669 | Do. |
| Coating of raisins and other foods | 2,909,435 | Oct. 20, 1959 |
| Spray drying apparatus | 2,911,036 | Nov. 3, 1959 |
| Flame-resistant organic textiles and method of production | 2,911,325 | Do. |
| Aziridine-phenolic polymers | 2,912,412 | Nov. 10, 1959 |
| Phosphorus containing polyesters and method for their production | 2,913,436 | Nov. 17, 1959 |
| Detergent compositions | 2,915,473 | Dec. 1, 1959 |
| Aziridine-carboxylic acid esters | 2,915,480 | Do. |
| Methylol-phosphorus modified epoxy resins | 2,916,473 | Dec. 8, 1959 |
| Process for the production of cellulosic textiles with permanent creases and improved soil and abrasion resistance | 2,917,412 | Dec. 15, 1959 |
| Reaction products of 1-aziridinyl compounds with compounds containing active methylene groups | 2,917,492 | Do. |

Mr. WHITTEN. I might say here for the record, most folks understand it, but a patent taken out in the name of the Government makes it available to anyone in industry who sees fit to make use of it.

Dr. IRVING. That is correct. There are no licensing charges.

### ORGANIZATION CHANGES IN UTILIZATION RESEARCH

There are two internal developments that I would like to mention briefly because I know you will have interest in them. First, Dr. W. D. Maclay, formerly director of our northern laboratory at Peoria, has been for the last 8 months and will continue as Assistant Administrator in the Washington office of the Agricultural Research Service.

We are very fortunate to have Dr. Maclay with us in Washington, since he can bring to Washington a strength which we can well use in our program. And we are also fortunate in having Dr. F. R. Senti to succeed him as director of the northern laboratory at Peoria.

The second administrative development that I would like to mention is the establishment recently within Utilization Research and Development of a small staff called a product and process evaluation staff, headed by Dr. John R. Matchett, who is known to many of you. It will be the purpose of this staff to study potentials of new products and new processes and to advise us on the likelihood of success of such products and processes, and the extent to which they will use agricultural commodities if they succeed. We feel that this advice, which will be continuing, will be most helpful to us in making decisions on where to employ our research funds to get the greatest and earliest impact upon alleviation of surplus problems.

### GOAL OF UTILIZATION RESEARCH

Now, as we take the first item on cereals, I would like to mention a point which applies equally to all of the research items that we have.

While we like to emphasize the brandnew projects that we will start with any increased funds which may be appropriated, we should like to point out that we cannot relax completely with respect to the new uses that we have developed as a result of past research.

There is nothing more vulnerable than an established product, and there is no defense against a new idea, except a better one; so we are constantly striving, as all research organizations must, to anticipate ways in which the products we have developed can be put out of business, and avoid their being put out of business, before our competitors do it for us.

Our job, we know, is to help farmers place their raw materials in industrial markets or in markets generally, and we hope that our research will place more of them in these markets, will keep them in these markets and permit them to expand with these markets.

AGRICULTURAL PRODUCTS AS SOURCE OF RAW MATERIAL IN INDUSTRY

Mr. WHITTEN. Dr. Irving, I think all of us would like to find some outlet at a reasonable price, which might tend to solve the problem of using these products that are produced in surplus. The various studies that have been made in the past I thought lacked lots of being thorough.

From sitting on this committee, I cannot help but believe that food and food products are apt to end up, however plentiful they might be, but end up as having greater value in world trade, and what they would bring as food and fiber, than we could ever hope for them to find in industrial use.

So frequently we stress industrial use. The reports and studies that I have seen have not started off with a determination of what industry is paying for its present source of raw material, and unless its present raw material is expensive enough to the industry, you haven't got anything when you get them to use an agricultural product, for instance, if you have to give it to them.

I hear many speeches about the use of grain for alcohol. Our own study developed that you had to sell grain at 26.5 cents a bushel before you could compete in the alcohol field. Now, there are many, many other illustrations of the same type.

It has been pointed out that wheat would make very fine insulation board, but so would cornstalks. I just wondered, in this area, if you had started taking as your starting point on the industrial use: what is industry using now in the way of raw material? What does it pay for? What return could agriculture expect for the agricultural commodity if it were to displace or take over supplying of that raw material to industry?

Secondly, are you just shifting that industry from one type of agricultural product over to another?

Now, there is a question of narrowing the field where there is hope of some cash return in solving this problem. I have had it pointed out to me. I think we have seen illustrations from Dr. Shaw's agency here. We have seen examples of cloth made from a variety of things; but it offered no real outlet. It was just a curiosity.

I am sure that there are many places from a curiosity standpoint where you could convert agricultural commodities into a variety of things, but not on anything like an economic basis or any basis that would return anything like a fair price for the raw material.

Have you got any comments on efforts you have made to narrow the field?

Dr. IRVING. Your comments, Mr. Chairman, are pertinent, and I think they describe exactly the situation that confronts us in our research. We are endeavoring to develop uses which can stand on their own economically; considering the present costs of agricultural materials, products we develop must have properties that can compete on the market with products made from other raw materials.

An example of one of our products that has been very successful is the development of epoxy plasticizers. You have heard about this one before—of the epoxy oil plasticizers developed at our eastern laboratory. About 40 to 50 million pounds of surplus fats go into the production of these plasticizers each year, and we anticipate in a few years this market may be as high as 200 million pounds. They compete with petroleum-base plasticizers, and they stay in this market because they are better for certain uses than plasticizers made from any other source. They are made from fats going at market prices for those fats.

I think another example has been cotton which, of course, is not a food, and never has been; never will be. Here we have endowed cotton with special properties to permit it to compete with synthetic fibers, and so give cotton fabrics the properties that consumers are requiring more and more.

Because of the developments in 20 years of research at our southern laboratory, all of which has been published, the industry has developed cotton wash-and-wear fabrics to a high degree of perfection. These developments have been responsible for keeping 800,000 bales of cotton in the market. They would not have been marketed had this research not been done.

Both of these uses, epoxy plasticizers and chemically modified cottons, return a fair price for the raw material.

Mr. WHITTEN. I had the privilege of going through the laboratory and going over the project and visiting with the personnel there. I thought it very informative. I think I was there some years ago. But it is the first time in several years, and some of the fairly recent progress that has been made in this area was rather impressive.

You may proceed.

### UTILIZATION RESEARCH ON CEREALS

Dr. IRVING. The first item of increase requested is for cereals. The increase requested is $506,600, plus $700,000 by redirection from farm research, making a total of $1,206,600.

### PROPOSED REDIRECTION OF RESEARCH

Mr. WHITTEN. I think the record ought to show again that this committee meets here with, in effect, a ceiling on what we can effectively put through. I don't see much chance for this subcommittee to increase the overall amount recommended in your budget. I try to be practical.

Since that is true, then, we are faced with a comparison of your request for additional funds with that which you would curtail or limit or cut out.

In other words, we have to pass on whether your shift from one to the other is sound enough for us to buy the shift. So I think we should put in the record at this point the projects and locations that you have cut down in connection with this $700,000 transfer, and then we would like for you to compare the value of what we are doing with the value of what you propose, and let us see where you come up with this being better than the other, because that is what we are going to be faced with.

Dr. IRVING. I would be glad to talk to the second point, Mr. Chairman; what we would do with the $700,000 in utilization research.

Mr. WHITTEN. Let us put that list in there of what you are already doing. We are discussing now the movement of that money from what you are already doing over to this new one. We want to know why you think this is better than that because, if we go along with you, that is what we are going to face.

Dr. SHAW. The table you have asked to be inserted, showing the locations and the amounts to be curtailed, can be placed in the record now; and, Mr. Chairman, I wasn't certain, did you want us, in addition to placing the table in the record, to describe in some detail each one of these?

Mr. WHITTEN. If you are asking us, as you are, to go before the Appropriations Committee and say we are parties to cutting this work out at these locations, and we did it because the Department said it was better to cut it out there and go here and do this—if we are going out there, we don't especially know why you did it; and if we are going to buy this package, we, in turn, have to have some basis on which to do it.

I don't know whether the committee will or will not, but that is what we will be trying to defend if we should go along with your recommendation.

Dr. SHAW. Would you like us to discuss that now?

Mr. WHITTEN. Yes.

Dr. SHAW. Could I ask Dr. Byerly to come up here and discuss these now?

Mr. WHITTEN. Yes, sir.

We shall put this table in, to begin with.

(The table referred to follows:)

*Proposed reductions in farm research due to redirection of funds, fiscal year 1961* [1]

| Salaries and expenses, research | Redirection to utilization research | Balance, fiscal year 1961 [2] |
|---|---|---|
| **Alabama:** | | |
| Florala: Elimination of cooperative research on cereal and forage insects | $26,612 | |
| **Alaska:** | | |
| Petersburg: Closing research on breeding, feeding, and diseases of fur animals | 26,228 | |
| **California:** | | |
| *Brawley: | | |
| Elimination of studies on alfalfa and alfalfa-grass mixtures for pastures | 13,000 | |
| Other crops research | | $77,810 |
| Soil and water conservation research | | 115,558 |
| Subtotal | 13,000 | 193,368 |
| Davis: | | |
| Elimination of production research on wheat ($4,029) and cotton ($8,790) | 12,819 | |
| Other crops research | | 100,071 |
| Livestock research | | 77,960 |
| Soil and water conservation research | | 10,970 |
| Farm economics research | | 31,887 |
| Agricultural engineering research | | 46,985 |
| Subtotal | 12,819 | 267,873 |
| Los Angeles: | | |
| Elimination of cotton production research | 10,249 | |
| Soil and water conservation research | | 17,683 |
| Subtotal | 10,249 | 17,683 |
| Pasadena: | | |
| Elimination of corn breeding research | 10,464 | |
| Utilization research and development | | 150,000 |
| Subtotal | 10,464 | 150,000 |
| Pomona: | | |
| Reduction in soil and water conservation research | 8,000 | |
| Other soil and water conservation research | | 29,650 |
| Subtotal | 8,000 | 29,650 |
| **Colorado:** | | |
| Fort Collins: | | |
| Elimination of research on insects of sugar beets ($4,036) and vegetables ($8,194) | 12,230 | |
| Livestock research | | 27,500 |
| Crops research | | 217,489 |
| Soil and water conservation research | | 441,610 |
| Farm economics research | | 33,683 |
| Subtotal | 12,230 | 720,282 |
| **Florida:** | | |
| Monticello: Closing cooperative research on pecan insects | 6,500 | |
| Quincy: Closing cooperative research on insects affecting tobacco | 10,753 | |
| **Georgia:** | | |
| Experiment: | | |
| Elimination of research on harvesting and farm handling of corn | 10,070 | |
| Livestock research | | 17,856 |
| Crops research | | 60,693 |
| Subtotal | 10,070 | 78,549 |
| *Fleming: Closing cooperative soil and water conservation research | 35,015 | |
| **Indiana:** | | |
| Lafayette: | | |
| Elimination of research on wheat production | 7,915 | |
| Other crops research | | 83,026 |
| Livestock research | | 109,034 |
| Entomology research | | 40,273 |
| Soil and water conservation research | | 51,720 |
| Farm economics research | | 15,047 |
| Agricultural engineering research | | 17,405 |
| Subtotal | 7,915 | 316,505 |

See footnotes at end of table.

*Proposed reductions in farm research due to redirection of funds, fiscal year 1961* [1]—Continued

| Salaries and expenses, research | Redirection to utilization research | Balance, fiscal year 1961 [2] |
|---|---|---|
| Kansas: | | |
| Hays: | | |
| Elimination of wheat production research | $3,000 | |
| Other crops research | | $16,954 |
| Soil and water conservation research | | 5,648 |
| Subtotal | 3,000 | 22,602 |
| Manhattan: | | |
| Elimination of research on heat pumps for farm dwellings | 16,510 | |
| Elimination of breeding research on corn | 17,906 | |
| Other crops research | | 119,417 |
| Livestock research | | 9,600 |
| Entomology research | | 20,485 |
| Soil and water conservation research | | 66,597 |
| Farm economics research | | 35,960 |
| Subtotal | 34,416 | 252,059 |
| Louisiana: | | |
| Alexandria: | | |
| Closing cooperative research on pastures and weed control | 9,434 | |
| Baton Rouge: | | |
| Elimination of production research on cotton | 11,759 | |
| Other crops research | | 40,066 |
| Entomology research | | 101,572 |
| Soil and water conservation research | | 42,813 |
| Farm economics research | | 14,693 |
| Subtotal | 11,759 | 199,144 |
| Shreveport: | | |
| Elimination of research on pecan insects | 8,934 | |
| Crops research | | 55,508 |
| Subtotal | 8,934 | 55,508 |
| Maryland: | | |
| *Beltsville: | | |
| Reduction in research on chronic respiratory disease of poultry | 9,000 | 58,486 |
| Other poultry disease and parasite research | | 267,959 |
| Subtotal | 9,000 | 326,445 |
| College Park: | | |
| Elimination of research on chronic respiratory disease of poultry | 11,500 | |
| Other livestock research (including poultry) | | 9,300 |
| Soil and water conservation research | | 39,420 |
| Agricultural engineering research | | 19,330 |
| Subtotal | 11,500 | 68,050 |
| Mississippi: | | |
| State College: | | |
| Elimination of cotton production research | 5,915 | |
| Other crops research | | 71,230 |
| Livestock research | | 15,297 |
| Entomology research | | 45,556 |
| Soil and water conservation research | | 53,784 |
| Farm economics research | | 10,026 |
| Agricultural engineering research | | 11,120 |
| Subtotal | 5,915 | 206,993 |
| Nebraska: | | |
| Lincoln: | | |
| Elimination of research on intestinal roundworms of swine | 3,000 | |
| Other livestock research | | 37,434 |
| Crops research | | 122,325 |
| Entomology research | | 42,750 |
| Soil and water conservation research | | 102,480 |
| Farm economics research | | 36,452 |
| Agricultural engineering research | | 18,390 |
| Subtotal | 3,000 | 359,831 |

See footnotes at end of table.

*Proposed reductions in farm research due to redirection of funds, fiscal year 1961* [1]—Continued

| Salaries and expenses, research | Redirection to utilization research | Balance, fiscal year 1961 [2] |
|---|---|---|
| Nevada: | | |
| Reno: | | |
| Elimination of weed research | $9,908 | |
| Other crops research | | $32,102 |
| Livestock research | | 2,500 |
| Entomology research | | 7,785 |
| Soil and water conservation research | | 42,208 |
| Farm economics research | | 8,282 |
| Subtotal | 9,908 | 92,877 |
| New Mexico: | | |
| University Park: | | |
| Elimination of research on agricultural watersheds | 22,059 | |
| Other soil and water conservation research | | 16,644 |
| Livestock research | | 31,263 |
| Crops research | | 33,468 |
| Farm economics research | | 15,302 |
| Subtotal | 22,059 | 96,679 |
| North Carolina: | | |
| Raleigh: | | |
| Elimination of production research on wheat | 1,997 | |
| Other crops research | | 199,365 |
| Livestock research | | 24,650 |
| Soil and water conservation research | | 34,750 |
| Farm economics research | | 31,344 |
| Agricultural engineering research | | 16,241 |
| Utilization research and development | | 22,333 |
| Subtotal | 1,997 | 328,683 |
| Willard: | | |
| Elimination of dairy cattle feeding and management research | 13,000 | |
| Crops research | | 1,700 |
| Subtotal | 13,000 | 1,700 |
| Oklahoma: | | |
| Chickasha: | | |
| Elimination of research on cotton ginning | 4,955 | |
| Crops research | | 2,528 |
| Soil and water conservation research | | 21,936 |
| Subtotal | 4,955 | 24,464 |
| Stillwater: | | |
| Elimination of research on pecan production | 4,938 | |
| Other crops research | | 104,626 |
| Livestock research | | 10,234 |
| Entomology research | | 28,260 |
| Soil and water conservation research | | 45,476 |
| Farm economics research | | 37,133 |
| Agricultural engineering research | | 35,944 |
| Subtotal | 4,938 | 261,673 |
| Oregon: | | |
| La Grande: Closing cooperative pasture, range, and wood control research | 10,094 | |
| Pennsylvania: | | |
| University Park: | | |
| Reduction in soil and water conservation research | 9,500 | 17,895 |
| Crops research | | 121,300 |
| Entomology research | | 11,584 |
| Farm economics research | | 17,289 |
| Subtotal | 9,500 | 168,068 |
| South Carolina: | | |
| Clemson: | | |
| Elimination of production research on cotton | 7,754 | |
| Other crops research | | 42,476 |
| Soil and water conservation research | | 41,976 |
| Farm economics research | | 26,725 |
| Agricultural engineering research | | 84,499 |
| Subtotal | 7,754 | 195,676 |

**See footnotes at end of table.**

*Proposed reductions in farm research due to redirection of funds, fiscal year 1961* [1]—Continued

| Salaries and expenses, research | Redirection to utilization research | Balance, fiscal year 1961 [2] |
|---|---|---|
| South Dakota: | | |
| *Newell: | | |
| Closing Federal station engaged in soil and water conservation research | 38,181 | |
| Agricultural watersheds research (which may be transferred to other field headquarters location in the region) | | 24,807 |
| Subtotal | 38,181 | 24,807 |
| Tennessee: | | |
| Knoxville: | | |
| Elimination of corn breeding research | 12,247 | |
| Other crops research | | 156,864 |
| Livestock research | | 30,692 |
| Farm economics research | | 18,918 |
| Agricultural engineering research | | 23,550 |
| Subtotal | 12,247 | 230,024 |
| Texas: | | |
| Denton: | | |
| Closing cooperative production research on wheat ($7,664) and oats ($500) | 8,164 | |
| Closing research on cereal and forage insects | 10,869 | |
| Subtotal | 19,033 | |
| *Greenville: | | |
| Elimination of research on cotton production | 22,696 | |
| Household economics research (short-term survey project) | | 6,600 |
| Subtotal | 22,696 | 6,600 |
| Waco: Closing cooperative research on cotton insects | 51,503 | |
| Weslaco: | | |
| Elimination of research on cereal and forage insects | 1,500 | |
| Crops research | | 117,416 |
| Soil and water conservation research | | 297,744 |
| Utilization research and development | | 71,046 |
| Subtotal | 1,500 | 486,206 |
| Utah: | | |
| Ephraim: Closing cooperative research on grasses and legumes for western ranges | 13,011 | |
| Logan: | | |
| Elimination of production research on wheat | 4,555 | |
| Other crops research | | 156,407 |
| Livestock research | | 68,500 |
| Entomology research | | 60,219 |
| Soil and water conservation research | | 57,431 |
| Farm economics research | | 18,159 |
| Subtotal | 4,555 | 360,716 |
| Washington: | | |
| Puyallup: | | |
| Elimination of farm electrification research to reduce labor on dairy farms | 10,000 | |
| Crops research | | 19,745 |
| Utilization research and development | | 20,650 |
| Subtotal | 10,000 | 40,395 |
| Wisconsin: | | |
| Madison: | | |
| Elimination of production research on wheat | 4,786 | |
| Other crops research | | 250,275 |
| Livestock research | | 72,232 |
| Entomology research | | 52,223 |
| Soil and water conservation research | | 26,119 |
| Farm economics research | | 26,351 |
| Agricultural engineering research | | 18,297 |
| Subtotal | 4,786 | 445,497 |
| Wyoming: | | |
| *Cheyenne: Closing Federal station engaged in research on fruits ($18,747), vegetables ($46,730), and farm windbreaks ($12,870) | 78,347 | |

See footnotes at end of table.

*Proposed reductions in farm research due to redirection of funds, fiscal year 1961* [1]—Continued

| Salaries and expenses, research | Redirection to utilization research | Balance, fiscal year 1961 [2] |
|---|---|---|
| District of Columbia: | | |
| Curtailment of funds for studies on changing characteristics and use of local and migratory hired farm laborers | 25,000 | |
| Other farm economics research | | 1,684,556 |
| Subtotal | 25,000 | 1,684,556 |
| General administration and management | 48,123 | |
| Grand total | 700,000 | 7,713,163 |

[1] All work at State locations except as noted by asterisk (*).
[2] Includes amounts estimated for health benefits costs in fiscal year 1961.

Dr. BYERLY. All of this was established in the determination of policy, that there should be a redirection of emphasis from farm research in this amount of $700,000 to utilization research.

Accepting that statement of policy, we have selected these locations on two criteria: First, we have certain locations that are relatively ineffective.

PETERSBURG, ALASKA

The first of these you may recognize from our statement 2 years ago. It is Petersburg, Alaska, not the first location but the first one I will discuss now. This is an isolated, one-man station, in which we cooperate with the Alaska Experiment Station, on fur farming research. The work is of low priority because of isolation and because, in our judgment, there is no evidence or little evidence that fur farming is likely, in the near future, to increase materially in Alaska. There are very few fur farms there now, so that we feel that this is a low priority location.

Mr. WHITTEN. Dr. Byerly, may I interrupt to ask this: I am not trying to put you on the spot, but so that I may understand it. I understand that at the policy level, which means at the Secretary level, the determination was made to redirect and, in effect, to transfer approximately this amount from the old line of research to utilization research and then, when that policy decision was made, you and your group, in effect, with orders to curtail the amount by $700,000, used your own judgment as to where to apply the amount which had already been determined. Am I correct in that?

Dr. BYERLY. That, in essence, is correct. I do not in any way question this policy.

Mr. WHITTEN. I don't want to put you on that spot. I am just trying to trace the sequence of events, as to how this occurred.

Dr. BYERLY. Yes, this is correct.

CHEYENNE, WYO.

The next one I would like to allude to is Cheyenne, Wyo. At Cheyenne, Wyo., we have a rather decent laboratory, from the standpoint of facilities. It has a fairly productive history under rather difficult circumstances. It has never had adequate financial support to make this a fully productive laboratory. Potentially, the area has many problems, but from the standpoint of productivity the

work we do there must be given a low priority per dollar expended because our output is relatively small.

Mr. WHITTEN. When you make those statements, you mean in comparison?

Dr. BYERLY. That's correct.

Mr. WHITTEN. With other activities, it has a lower rate of return per dollar spent?

Dr. BYERLY. That's correct. That is why we make it a low priority station.

Another one, this——

NEED FOR PROPERLY STAFFING EXISTING LOCATIONS

Mr. ANDERSEN. You would say, then, that it is far more important to have the proper staffing of the laboratories we do have, rather than to have too many laboratories not equipped to do the job.

Dr. BYERLY. Mr. Andersen, I fully subscribe to what Mr. Peterson stated yesterday, that as a matter of policy, that where we have locations, they ought to be adequately supported.

Mr. ANDERSEN. I gathered from Mr. Peterson yesterday that he was more concerned—especially in connection with these soil and water research laboratories—that we pay more attention to the proper staffing of what we do have now, rather than to increase their number. That is what I gathered from Secretary Peterson yesterday, and it is a sound policy.

Dr. BYERLY. As a general statement I understand this is to be the policy, and I respect it, fully support it, not only with water and soil, but——

Mr. ANDERSEN. To be given the materials to do the job.

NEWELL, S. DAK.

Dr. BYERLY. Another one in this category of being relatively ineffective is Newell, S. Dak. This is one of the old dryland stations that has been in operation for something over 50 years. In our opinion, it has done most of the significant work that can be done at that particular location with respect to soil and water research, and its productivity is likely to be low with respect to funds spent. We have therefore placed it in the low-priority category.

OTHER STATIONS

There are several additional stations that are small in size, and those I will not enumerate but will insert an explanation of them in the record.

(Information follows:)

*Description of farm research affected by redirection of funds to utilization research*

Alabama, Florala: Elimination of cooperative research on the control and eradication of the white-fringed beetle ..... $26,612
The program is concentrated on research to develop better methods of detection to support the cooperative eradication program.

Alaska, Petersburg: Closing work on breeding, feeding and diseases of fur animals (animal husbandry research $21,800; animal disease and parasite research $4,428) ---------- $26,228

This station is operated cooperatively with the Alaska Agricultural Experiment Station, the land and facilities being owned by the Alaska station. The work at the station, which is concerned especially with the development of good economical diets based on maximum use of fish waste from the fishing industry, would be terminated.

California, Brawley: Elimination of studies on alfalfa ($3.650) and forage ($9,350) ---------- 13,000

This research is on the varietal testing of alfalfa and the development of salt-tolerant grasses, especially for the Imperial Valley.

California, Davis: Elimination of research on wheat ($4,029) and cotton ($8,790) ---------- 12,819

The wheat breeding research, which uses the backcross method of breeding has been employed successfully in incorporating resistance to smuts and other diseases into west coast varieties. The cotton research is concerned with the basic pathological studies of the nature of resistance of the cotton plant to verticillium wilt.

California, Los Angeles: Elimination of research on cotton ---------- 10,249

Physiological research is conducted on abscission of leaves and auxin relationships to leaf shed; the information is used for the development of better defoliants and desiccants.

California, Pasadena: Elimination of research on corn ---------- 10,464

The research is cooperative with Cal-Tech on corn cytogenetic studies.

California, Pomona: Elimination of soil physical and chemical studies used to support field drainage and water use investigations by other scientists in the Western States ---------- 8,000

Colorado, Fort Collins: Elimination of research on insects affecting sugar beets ---------- 12,230

The research is concerned with insect problems of sugar beets and vegetables in the intermountain area.

Florida, Monticello: Closing cooperative research on pecan insects ---- 6,500

Plans were under way to relocate the pecan insect research to Albany, Ga., by the beginning of fiscal year 1962, so that through relocation of the Florida and the Shreveport, La., work, enough resources could be developed in one place to conduct a reasonably adequate basic study of pecan insects.

Florida, Quincy: Closing cooperative research on insects affecting tobacco ---------- 10,753

The research is on insect pests of shade-grown tobacco and currently is concerned on insect pathogens for tobacco insect control.

Georgia:

Experiment: Termination of cooperative research with the Georgia Experiment Station on the engineering problems of harvesting and handling corn in the Southeast ---------- 10,070

Fleming: Closing Federal Soil and Water Conservation research station 35,015

The research is on soil and water management in the southeastern Tidewater area. The Georgia Agricultural Experiment Stations have research projects and full-time personnel at the station. The investigations include drainage, prevention of acid formation in water supplies, liming and soil acidity, regional experiments in fertilizer use and plant nutrition and development of cropping systems for the tidewater area.

Indiana, Lafayette: Elimination of research on wheat breeding ------ 7,915

Cooperative research has been highly successful in incorporating resistance to Hessian fly and smut and other diseases into improved varieties with high quality and yield.

Kansas, Hays: Elimination of wheat breeding research ---------- 3,000

The primary purpose of the cooperative research is to incorporate resistance to streak mosaic virus in wheat varieties for central and western Kansas.

Kansas, Manhattan: Termination of cooperative research with the Kansas Experiment Station, industry and electric utilities on the use of the heat pump (reversed refrigeration cycle) combined with solar energy for farmhouse heating ..... $16,510
Elimination of corn breeding research ..... 17,906
The corn breeding research has emphasized the development of corn hybrids for the Great Plains region resistant to climatic hazards such as drought and top firing.
Louisiana, Alexandria: Elimination of pasture, range, and weed control research ..... 9,434
The research is cooperative with the Forest Service and is a part of the weed research program. It is primarily concerned with the control and elimination of hardwood trees in pine stands.
Louisiana, Baton Rouge: Elimination of cotton production research ..... 11,759
The research is on the development of seed treatments to control cotton seedling diseases and to evaluate new upland cotton selections for resistance to fusarium wilt and nematodes.
Louisiana, Shreveport: Elimination of research on pecan insects ..... 8,934
Plans were underway to relocate the pecan insect research to Albany, Ga. by the beginning of fiscal year 1962 so that through relocation of the Florida and the Shreveport, La. work, enough resources could be developed in 1 place to conduct a reasonably adequate basic study on pecan insects.
Maryland:
Beltsville: Reduction of funds for chronic respiratory diseases of poultry ..... 9,000
College Park: Elimination of funds for chronic respiratory diseases of poultry ..... 11,500
Basic research is conducted on the chronic respiratory disease complex. The work complements to a degree related work at other locations.
Mississippi, State College: Elimination of cotton breeding research ..... 5,915
Research to develop techniques for the use of plant breeders in evaluating cotton hybrids for resistance to verticillium wilt is conducted by the joint Federal-State plant pathologist.
Nebraska, Lincoln: Elimination of research on intestinal roundworms of swine ..... 3,000
Nevada, Reno: Elimination of weed control research ..... 9,908
The research is primarily on the ecology of halogeton; there is also some research on methods of control of Medusa-head rye.
New Mexico, University Park: Elimination of research on hydrology of agricultural watersheds ..... 22,059
The research is concerned with water yields and floodflows from watersheds in the Southwest.
North Carolina, Raleigh: Elimination of wheat breeding research ..... 1,997
The research is concerned with evaluating the world wheat collection for resistance to septoria leaf spot.
North Carolina, Willard: Elimination of dairy cattle feeding and management research ..... 13,000
The research is currently directed at the evaluation of forage crops in feeding dairy cattle, including the testing of different species typical of the Southeast and of utilization as pasture, as silages preserved in different ways, and as hay.
Oklahoma:
Chickasha: Termination of cooperative research with the Oklahoma Experiment Station on cotton ginning ..... 4,955
Stillwater: Elimination of research on pecan diseases ..... 4,938
The research work in this area is primarily on pecan scab.
Oregon, LaGrande: Elimination of pastures, range and weed control research ..... 10,094
Research cooperative with the Forest Service is conducted on reseeding, management and weed control of high altitude ranges of the Pacific Northwest. Emphasis is given to the studies on the revegetation of problem areas and to increasing grazing capacity of high altitude ranges.

| | |
|---|---|
| Pennsylvania, University Park: Closing out studies of techniques for deepening the effective root zone of crop plants in the acid soils of the Northeast | $9,500 |
| South Carolina, Clemson: Elimination of cotton production research. The work is primarily concerned with basic research on fusarium wilt of cotton, a serious disease of this crop throughout the South. | 7,754 |
| South Dakota, Newell: Closing Federal station engaged in research on irrigation, moisture conservation and soil management for the fine textured soils of the Northern Plains. Closing the location would require finding new headquarters for studies on the hydrology of agricultural watersheds which have recently been housed there and which work would be continued. | 38,181 |
| Tennessee, Knoxville: Elimination of corn breeding research. The research is on the development of adapted corn hybrids for the Southeast. | 12,247 |
| Texas, Denton: Elimination of production research on wheat ($7,664) and oats ($500). The research is concerned with wheat and oats as crops for the Blacklands area. | 8,164 |
| Closing cooperative research on insects affecting cereal and forage crops. Plans are underway to transfer this work to Stillwater, Oklahoma, headquarters for cooperative Central Grain Insect Investigations, in order to strengthen investigations on the control of insects on sorghum. | 10,869 |
| Texas, Greenville: Closing U.S. Cotton Field Station. The research is primarily concerned with studying cotton seedling diseases, and breeding and evaluating cotton varieties adapted to the Blacklands area of Texas. Independent of considerations of the proposed redirection of funds to utilization research, preliminary negotiations have been made with the Greenville Chamber of Commerce to discontinue this location. | 22,696 |
| Texas, Waco: Closing research on cotton insects. The cooperative research is concerned with studies on the control of the boll weevil, pink bollworm, bollworm, and other cotton insects. | 51,503 |
| Texas, Weslaco: Closing research on Rhodes-grass scale | 1,500 |
| Utah, Ephraim: Elimination of research on grasses and legumes for Western ranges. This research is cooperative with the Forest Service on range reseeding problems. | 13,011 |
| Utah, Logan: Elimination of production research on wheat. Research is conducted on the breeding of wheats adapted to the upper basin, especially varieties resistant to smuts. | 4,555 |
| Washington, Puyallup: Termination of cooperative work with the Washington Experiment Station on research on equipment for reducing labor requirements for dairy production in the Northwest. This would reduce the Department research on this problem by about one-third. | 10,000 |
| Wisconsin, Madison: Elimination of production research on wheat. Research is conducted on the transfer of factors for resistance to Hessian fly and leaf rust in hard red spring wheats. | 4,786 |
| Wyoming, Cheyenne: Closing Cheyenne Horticultural Field Station. The research is concerned with breeding, diseases, and production problems relating to fruits and vegetables grown in the high plains area and on farm windbreaks. Funds to operate the station have been inadequate for years. | 78,347 |
| District of Columbia: Curtailment of funds for studies on changing characteristics and use of local and migratory hired farm laborers | 25,000 |
| Administration and general services | 48,123 |
| Total | 700,000 |

Mr. WHITTEN. Now, Doctor, did you wish to add something?

INTERRELATIONSHIP BETWEEN FARM AND UTILIZATION RESEARCH PROGRAMS

Dr. BYERLY. I strongly support farm research on three bases: First, with our burgeoning population we have need for basic research, so that we may anticipate the needs of future production. This, I think, is a very strong need. We cannot do things overnight.

Second, if we are to have a continuing opportunity for industrial utilization of agricultural products, we must have a strong farm research program, so that those products that are used for industrial purposes, may be in constant supply, constant availability of the quality needed, and may be produced at a competitive price which will reflect some net return to the farmers. Third, we must have research to protect our crops and livestock and to conserve our soil and water. So I am very strongly for farm research; and, too, I am strongly for utilization research.

It would be difficult for Dr. Irving and myself to make a point-by-point comparison, looking each from his own point of view. We might have some differences of opinion; but we certainly could both agree, I think, that both of these fields of research are necessary.

The statement was made yesterday that since corn, wheat, and cotton have often been in supply in excess of our domestic needs, that if the redirection of the research was made toward these crops which are being emphasized in the utilization program, it would seem appropriate to derive funds for such research from the farm research program on these same crops.

So several of these places were selected from that standpoint, and were selected from areas that would do the least harm to the program as a whole.

Mr. WHITTEN. By trying to develop this, I am not in any way taking issue or reaching any determination at this point. I just think the record should show the full story. That is as far as I am going in this line of questioning, to develop the record as to what really is happening.

Dr. BYERLY. I think that completes my statement with respect to this redirection, and I will supply a statement with respect to each location, the work that is going on at that location, and the effect of the reduction on that; so that it will be possible for you to make a point by point comparison.

Mr. WHITTEN. I will give you the liberty, in connection with that, to show what other work for that particular commodity can be done with the transfer, if you so elect.

Dr. BYERLY. Very well.

UTILIZATION RESEARCH UNDER DOMESTIC AND FOREIGN CURRENCY PROGRAMS

Mr. WHITTEN. Dr. Irving, now we come to this increased amount for utilization research. I think it well for the record to show the amounts that are now being spent in utilization research with American money and with foreign currencies. Could you give us roughly how much you already have in this category, and to which this addition will be made?

Dr. IRVING. Our present base of directly appropriated funds is $16,116,700. We have allocated to our use a cumulative total of approximately $20 million of Public Law 480 funds under title 104(a), of which we have slightly less than $3 million obligated and in operation in foreign laboratories to the extent of some 30 different projects.

Mr. WHITTEN. Doctor, you know it strikes me that you ought to get a lot of research for that much money, and you start me off just wondering if the transfer within the Utilization Branch might not meet your needs as against reaching over into other types of research. I mention that early, so that you might persuade the committee, in the event that you can.

Dr. IRVING. The point was made yesterday, I believe, Mr. Chairman, that we cannot substitute dollar for dollar the foreign research that we are getting done for the research that is being done in our own laboratories.

To the extent that it is possible, in our exploration of foreign opportunities to do research, we are doing the things which would best supplement our domestic programs. To the extent that we are unable to find foreign scientists who can do those jobs as well as we can, we are not able to do that.

For that reason, we are maintaining, and believe we should maintain, the strongest program here in this country, with directly appropriated dollars, that our facilities and our abilty to get competent personnel will permit. We can direct these personnel and facilities to the very problems that we consider most important. We have to, on the other hand, with the foreign scientists, adapt our program to the projects that they with their competence and facilities are able to do.

Mr. WHITTEN. I think it would be well for you, in connection with your justification for the increase, to tell us what you are already doing, and how many personnel you have—in other words, this is for an increase in effort, perhaps a little bit in a new direction. What are you doing now? How many folks do you have on it? Why can't they do it?

I think that is a logical question for us to ask, so I will ask it.

### CURRENT UTILIZATION RESEARCH PROGRAM ON CEREALS

Dr. IRVING. On the cereal item, we have currently $2,427,928 for research in the Northern Laboratory and $387,800 in Western Laboratory. With this we employ—these are round figures—I can provide exact figures for the record if you wish them—about 150 professional personnel. That, of course, should be augmented by about an equal number of supporting nonprofessional staff, to give the total personnel figure that those funds will support.

We are now working on two of the problems that we would propose to devote the increases requested to. The increases would permit us to go forward more rapidly on these two particular items. The two that I will mention, are developmental studies on finding industrial uses for high amylose starch, and the development of microbiologically produced insecticides and industrial chemicals, based upon cereals as the substrate.

Mr. WHITTEN. Now, as to those two particular ones, are you doing work in that field already?

Dr. IRVING. Yes; we are doing work in both of those fields.

Mr. WHITTEN. How much money is allocated in the present fiscal year to those two, and how many people are involved?

Dr. IRVING. I will have to supply that since I don't know offhand, Mr. Chairman, but I can give you some information for guidance now. on microbiologically produced insecticides, our current effort is very small. It was started by transfer of funds from discontinued work and is of the order of $50,000 to $100,000. Substantially more is involved in the high amylose corn work.

Mr. WHITTEN. We would be glad to have that type of information with regard to each of these points.

(The information referred to follows:)

Present program on high amylose starch and derivatives: $320,000; 14 professional personnel; 19 subprofessional personnel.

Present program on microbioligically produced insecticides and industrial chemicals: $65,000; 4 professional personnel; 1 subprofessional.

Mr. WHITTEN. How about milling and milled products of wheat, and the other supporting and exploratory research? What do we have in those particular fields now? Do you have projects that these will just increase or put a little more crash approach to; or just what is the story?

Dr. IRVING. In research on milling and milled products of wheat, we are working at a level of $150,000; eight professional personnel and two supporting subprofessionals. A part of the increase requested, some $300,000 of it, as a matter of fact, would go to our Western Laboratory to initiate an all-out program with the staff at the Western Laboratory involved in cereal work, to develop new leads for the industrial use of wheat fractions derived from grinding, and air separation of wheat. That process, which is fairly new in the industry, permits us to grind wheat and to separate it into protein-rich, starch-rich, bran-rich fractions, each of which has characteristic properties, and each of which constitutes a new raw material in itself.

We know practically nothing about the possibilities for the use of these fractions, because they never existed prior to the last year or two. This effort would add to the effort already underway at our Northern Laboratory in this field. It would give us two chances to find new uses for these products.

CEREALS RESEARCH AT NORTHERN AND WESTERN LABORATORIES

Mr. WHITTEN. Two chances? Research, you know, you can get the answers at Northern, and they could pass them on by telephone to this other place, or they could pass it back to Washington by letter or telephone. Now, I hear—used to hear—a little bit about duplication. I don't hear it much now. But it strikes me that you have, by your own description, something of a duplication.

Dr. IRVING. We are not speaking of two chances to solve the same problem, but two chances for discovering additional, new uses. The northern laboratory program will continue, and they will have a certain potential for the discovery and development of new products. We would multiply that potential by two, by adding another group of competent personnel to be working in this same area.

Mr. WHITTEN. Where is the western laboratory?

Dr. IRVING. Albany, Calif.

Mr. WHITTEN. Don't you think this is just pressure to put something out in California. I am not striking at California. We have the same kind of pressures from every State in the Union, on occasions, so I am not being personal there; but if you have a northern laboratory to carry on this type of work, and you have personnel there carrying it on, I have always understood it was much more expensive to set up a new location to do pretty much the same thing with the same product and the same problems.

That is very, very good if a fellow can afford it; but I wonder whether we can afford it?

Dr. IRVING. There has been wheat and cereal money at our western laboratory all along. This would not represent an entry into this field for the first time for the western laboratory. Their program, however, has tended toward the food uses of wheat, rather than industrial uses. We figure it would be better harnessing of this technical manpower to direct their attention to areas in which we feel there may be greater chances for developing substantial uses.

Mr. WHITTEN. In effect, you are redirecting the major effort of the western laboratory?

Dr. IRVING. Yes.

Mr. WHITEN. Why can't the folks who have been doing this other work, now that you have redirected them, turn over the leaf and start work on the other thing? Why do you have to put a whole lot of new people out there?

Dr. IRVING. We are redirecting some of our base funds in that direction, but we feel that the added funds we are requesting here are warranted, to permit them to do the full job of which they are capable.

Mr. WHITTEN. Even though the northern laboratory may do the job completely, you want them at least to show equal results with the northern laboratory, even though they may be the same results?

Dr. IRVING. I don't know that I follow that, Mr. Chairman.

Mr. WHITTEN. Well, as I understood your answer, it was that you wanted the folks at the western laboratory to reach their potential in results, and I said, according to your own statement you are carrying on the same work at the northern laboratory with the same problems. If you are going to get the answer at the northern laboratory, it strikes me, then, that you want the folks in California to come up with the answer equally as soon, so that they will have the same standing in the fraternity as the northern laboratory. That is where you leave me.

Dr. IRVING. I haven't been clear enough.

Mr. WHITTEN. I think you have been very clear, Doctor.

Dr. IRVING. The problem that we have is to find as many uses for wheat as we can. There probably will be no one use which will use all the wheat in the Nation. There will be many, industrial uses for wheat, to be developed, which, in the aggregate, will contribute to the alleviation of the surplus problem.

Mr. WHITTEN. These four major laboratories, it is my recollection were set up to handle this problem, the problems that are there. Now we go along and duplicate them in various other areas in the United States, and it strikes me that we are adding a whole lot of cost to our work as against, if it takes it, strengthening the staff and the work at our present locations.

As you know, I don't always get credit for it, but I represent a highly diversified agricultural district. Cotton is, to some degree, important in my district, but about one-tenth as much as is generally accepted on this committee. I do happen to be the only one from a cotton area on this subcommittee.

My own district and particularly the adjacent district to me is tremendously involved in cotton. But with that deep interest, I think it would be very unsound to duplicate the New Orleans Laboratory. If I have been sold anything in my years on this subcommittee, it is that you can do these things better at a central location than you can with dispersion.

Dr. IRVING. We would still have centralization, Mr. Chairman. In other words, we are not establishing a new laboratory and we are not giving a new commodity to the West. They have been working on wheat there since the start of our laboratories.

Mr. WHITTEN. But you are changing the emphasis that they are giving to it.

Dr. IRVING. Just as we are on most of our commodities, where that is possible. We are changing emphasis to——

Mr. WHITTEN. From one to the other, but $300,000 is pretty expensive moving. The other members of the committee may be convinced; I am not convinced. But you may proceed.

Dr. IRVING. Would you care to hear any more on the cereals item?

### UTILIZATION RESEARCH ON OILSEEDS

Mr. ANDERSEN. I would like to ask a question relative to that, Mr. Chairman.

Dr. Irving, I would like you to tell the subcommittee just what has been done, especially in Peoria, relative to helping the soybean and flaxseed producer. You might also take cottonseed into the same category. I am referring to the oilseeds. What have they done to brag about, as far as helping a farmer up in Minnesota get more than $2.70 for flax?

Dr. IRVING. I think we would not be immodest to claim credit for the major share of the contributions made to establishing soybean oil as the major edible oil in the United States. The basic research at the northern laboratory, at Peoria, has helped the industry solve the problems of oil stability, the reversion of flavor, the hydrogenation of oil to produce shortening, margarine, and, in general, place soybean oil in a position to enter these major food outlets.

Mr. ANDERSEN. You have really made quite a record in soybeans, have you not? Your research has created a market for about 23 or 25 million acres of soybeans in the last 30 years.

Dr. IRVING. I don't know it in acres, sir, but it is around 500 or 600 million bushels, which was last year's crop, and it has all found markets.

We have also worked on the soybean meal. Our research has shown how soybean meal can be better processed to increase its feed value, and to maximize advantages that soybean meal has in the feed market.

In the case of cottonseed, we have made similar contributions to the development of the cottonseed oil industry, contributions which have been responsible for putting that oil in major food markets

throughout the country. Again, on the meal, I think our contributions have been the primary ones in eliminating toxic factors from cottonseed meal so it can now be fed and used almost without restriction in livestock and poultry feeding. There is one remaining restriction on cottonseed meal, as you know. It is not fully acceptable for feeding to laying hens, because of yolk discoloration; that is an area in which we are still working.

In the case of linseed the contributions we have made have been largely in the chemical field, where we have found, through modification of the linseed oil, we can produce chemicals for the industry, such as resins and polymers, that are produced industrially now, and consume many millions of pounds of linseed oil per year. These take the place, or are helping to soften the blow which has resulted from the decreasing use of linseed oil in coatings and paints. We are now working, by redirection of substantial amounts of funds, on the development of emulsion paints from linseed oil for outside use.

Mr. ANDERSEN. Does the Peoria laboratory do any work relative to coconut oils and such. That is, oils that we do not produce ourselves?

Dr. IRVING. No, sir.

Mr. ANDERSEN. I am glad to hear that. I would criticize you very strongly if you did. I don't see any reason for putting out good money in our research to help bring in more foreign production, especially when we are very desperately looking for new substitute crops, such as soybeans, flaxseed, and something to take the place of our corn acreage, because we are in difficulties with corn and wheat. We need some crops for which we can get a good price, to replace what we should reduce on corn. I think you will agree with me on that.

Dr. SHAW. Mr. Andersen, we do work to try to find a substtitute for coconut oil. We modify cottonseed oil or soybean oil——

Mr. ANDERSEN. That would meet with my full approval, if you can find a good substitute, acceptable to industry, to take the place of some of these vegetable oils coming in from abroad. But I don't think it is within our province, gentlemen, to appropriate moneys here to help foreign imports, which in turn certainly don't do our agricultural producers much good.

Go ahead, Doctor, if you have something more on soybeans and linseed and cottonseed. I would like to hear it.

Mr. MICHEL. I think one striking figure that the gentleman might recall, when we were in Japan, is the fact that Japan alone imports $100 million worth of soybeans, paid for in dollars, Mr. Chairman, rather than local currencies. I think partial credit, then, should surely be given to those who have developed the kind of bean that those folks desire.

Mr. ANDERSEN. I believe, Mr. Michel, you will agree that was one of the most encouraging signs we found in any country, when we saw large amounts of soybeans which actually sold for dollars in the Japanese market. And the one thing that did bother us is that we find wheat exports to Japan tailing off for some reason or other. It was most disturbing.

Mr. WHITTEN. Off the record.

(Discussion off the record.)

UTILIZATION RESEARCH ON NEW AGRICULTURAL PLANTS

Mr. ANDERSEN. Just one more question, Dr. Irving: It seems to me I noticed in your brochure here somewhere, something to the effect that some work was being done at Peoria to help industrial users to find a substitute for vegetable oils, which they are using now, and which are now produced in the United States.

Dr. IRVING. I think you will find that under the heading "New and Special Crops," in that booklet, Mr. Andersen.

Mr. ANDERSEN. Just what does that mean? Are you trying to find them new oils or new uses of certain oils to replace some of our flaxseed?

Dr. IRVING. No, sir; that is just the reverse of our intent. We feel that there are a good many oils, for example, in the wild plants throughout the world that are not produced commercially in the United States. We feel a good many of these oils have properties which would make them good industrial raw materials, noncompetitive with any existing oils.

Mr. ANDERSEN. I am glad to hear that last statement. Absolutely noncompetitive with soybean, flaxseed and cottonseed.

Dr. IRVING. A good comparison might be castor oil, which contains ricinoleic acid, a substance which is found in no other plant source we know of. It is going into products for which soybean and linseed oil are not used.

Mr. WHITTEN. How far north can you grow the castor bean?

Dr. IRVING. In California and Texas. I don't know how much farther north it can be grown.

UTILIZATION RESEARCH ON CEREALS AT WESTERN LABORATORY

Mr. SANTANGELO. On the subject of what he was cutting out, I would like a little clarification with respect to the work to be done in California. Are you going to eliminate a field station or a research center to do the work over at Albany, Calif.?

Dr. IRVING. Not at all. We have cereal work going on at Peoria, and Albany, Calif., right now. We would increase the research in both areas.

Mr. SANTANGELO. The chairman brought out that you were going to do some work at Albany, which was supposed to leave a different research center. I didn't understand what you were proposing to do, whether you were going to close up one research center and increase your activity in Albany, Calif., or what.

Mr. Chairman, would you explore that situation?

Mr. WHITTEN. I might try to clarify it, if I understand it. There are two requests here. The increase that you request, a part of it is in new funds and part of it is transfer of $700,000 from work that Dr. Byerly testified to. Dr. Byerly showed where they were taking the $700,000 from. So that will be eliminations.

Then we turn to Dr. Irving here, and if I understood him correctly, you have this big northern laboratory that is doing this kind of research work. Instead of asking for an increase for new personnel there to expand, to put on more pressure, or to try to speed it up, you are requesting, $300,000 for the California station to work in the same field that your nothern laboratory is working in; if I understand it.

Dr. IRVING. You are correct, except for one point: $300,000 to the western laboratory is right; but $400,000 of the $700,000 from redirection from farm research, would go to Peoria.

Mr. WHITTEN. So you are strengthening at both places?

Dr. IRVING. That's correct, sir.

Dr. SHAW. There is a related issue here that Dr. Irving has not mentioned, in that we have wanted to expand the utilization research, and do it within the facilities we now have, without building more. So we want to, where we have some opportunity to expand work in the field of competence of the western laboratory at Albany, to bring them in, rather than to be proposing here an addition to our northern laboratory in order to house more people there.

### PERSONNEL AND EXPENDITURES FOR CEREALS UTILIZATION RESEARCH

Mr. WHITTEN. If you haven't done so, I would like you to make certain that the record shows how many people you have at both locations, how much money you have spent in this general field at those laboratories for people that would be available for this new work, so that we can see what it is that is involved, and how many new people would be at each one of the locations.

Dr. IRVING. We will be glad to do that.

(The information requested follows:)

CEREALS UTILIZATION RESEARCH

I. FUNDS AND PERSONNEL

| Item | Northern Utilization Research and Development Division | Western Utilization Research and Development Division |
|---|---|---|
| Fiscal year 1960: | | |
| Funds | $2,472,900 | $387,800 |
| Division personnel (average annual positions): | | |
| Professional | 157 | 20 |
| Subprofessional and other | 92 | 12 |
| Total | 249 | 32 |
| Increase, fiscal year 1961: | | |
| Funds | [1] $906,600 | [2] $300,000 |
| Division personnel (average annual positions): | | |
| Professional | 48 | 20 |
| Subprofessional and other | 7 | 5 |
| Total | 55 | 25 |

[1] Including $400,000 by redirection from "Farm research."
[2] Including $300,000 by redirection from "Farm research."

### CEREALS UTILIZATION RESEARCH PROGRAMS UNDER BASE FUNDS AND PROPOSED UNDER BUDGET INCREASE

(The following additional information was supplied for the record:)

#### A. CEREAL UTILIZATION RESEARCH WITH BASE FUNDS AT THE NORTHERN UTILIZATION RESEARCH AND DEVELOPMENT DIVISION, PEORIA, ILL.

1. *High-amylose corn and its starch.*—(*a*) Emphasis is on screening analyses of high-amylose strains to guide geneticists in developing commercial hybrid

varieties that contain starch high in amylose. Success is promising in that commercial varieties containing 55 percent amylose (Dent corn has 27 percent) are available, and inbred lines containing up to 80 percent are at hand.

(*b*) Preliminary studies are underway to develop efficient methods for milling this new corn into its starch and gluten.

(*c*) Studies have been initiated to determine the chemical and physical properties of this new starch in order to exploit its properties for industrial applications.

2. *Wheat milling for industrial products.*—(*a*) An efficient and economical process has been developed for chemically modifying wheat flour. Several modified products have been prepared, and their properties are such as to offer promise for new industrial uses of wheat flour. Plans are to exploit this basic finding insofar as facilities will permit in an attempt to develop new industrial products from wheat flour.

(*b*) The flour milling industry in America and Europe has developed new machinery and techniques for separating soft wheat flours into high-protein fractions for fortifying low-protein bread flours, and lower protein fractions useful for cake and pastry flours. A pilot plant based on these techniques has been developed and installed for the purpose of exploiting these new milling principles in separating surplus wheats into fractions having industrial potential. It is envisioned that flour fractions can be tailored for various chemical modifications (see 2(*a*) above) to give the most desired properties for various industrial applications. Preliminary experiments show that soft wheat flours can be fractionated to give high-starch fractions of industrial potential. As yet there is no known method for accomplishing this with hard wheats which constitute about 90 percent of the surplus. An increased research effort is believed justifiable in an attempt to develop such methods for hard wheat flour.

3. *Microbial insecticides.*—(*a*) Bacteriologists know of specific pathogens, noninfective to man and animals, for most of our crop destructive insects. These include Japanese beetle, corn borer, cotton boll weevil, alfalfa caterpillar, tobacco and tomato horn worms, and nematodes. To exploit these insect pathogens requires development of methods for growing the specific organisms in bulk on grain-based media, and inducing sporulation. Spores, the stable form of micro-organisms, are known to occur in nature, especially in the natural host, but to date have not been successfully obtained in mass culture. Exploratory studies with the Japanese beetle pathogens are sufficiently encouraging to indicate that mass production of spores, and substantial use of surplus grain, may be possible.

(*b*) Studies have also been initiated, on a small scale, to screen bacteria, molds, yeasts, and other micro-organisms from the 8,000 available in the ARS culture collection by growing them on grain-based media to discover those that produce poisons, repellants and attractants for insects.

4. *Dialdehyde starch development.*—(*a*) Basic studies initiated 5 years ago reached fruition during the past year by use of the USDA process for semicommercial production of dialdehyde starch. Accordingly, process development by USDA is being terminated.

(*b*) To accelerate the industrial acceptance of this new starch product, useresearch is underway in several areas: (1) physical and chemical properties are being examined for industrial possibilities; (2) conversion to other chemicals is underway; (3) use for producing wet-strength paper is being studied, and success is encouraging; and (4) use for tanning sole leather is being evaluated, and results to date are promising.

5. *New products from wheat gluten.*—(*a*) The unique character of gluten proteins in wheat differentiates it from the cheaper cereal grains—corn and grain sorghum. It is the cohesive, extensible, rubberlike properties of these proteins, when wet, that produces a loaf of bread. A recent breakthrough in the chemistry of wheat gluten allows, for the first time, the separation of these proteins into separate components, offering possibilities of gaining knowledge needed for further utilization. Emphasis is placed on exploiting this breakthrough to take advantage of the complexity that nature has built into wheat gluten to adapt it to industrial applications.

(*b*) Exploratory studies are underway on the microbial conversion of wheat gluten to new polymeric products. Progress is promising in one area in that a bacteria has been found that converts gluten to a new polymer. Extensive process and evaluation studies will have to be made before assessment of this discovery can be made.

6. *Foamed insulating and structural boards from wheat.*—Exploratory studies are underway to take advantage of the air-entraining properties of wheat gluten in flour to develop foamed structures. The problem is that of developing an insect-, microbial-, and water-resistant product competitive with those now made from petrochemicals. The price of wheat or even flour is attractive as a raw material, and success can be anticipated provided a low-cost process for the necessary chemical modification can be devised.

7. *Wheat conditioning for milling.*—Present research is directed toward the development of analytical methods for following the effect that moisture has on the cellular structure and constituents of the wheat berry by various moisture treatments for conditioning wheat for milling. Findings from these studies are to be applied in an attempt to develop suitable conditioning treatments for milling wheats into fractions for potential industrial applications.

8. *Increasing malt yield from wheat.*—Research is directed toward increasing the malt activity of malted wheat to allow wheat to recover markets being lost to fungal enzymes that are more potent.

9. *Development of new starch products.*—Exploratory research is underway to discover new starch products that can provide the basis for future applied research. This work includes investigations on (1) chemicals from starch and its derived glucose sugar, (2) new chemical modifications of starch, and (3) new graft polymers of starch through condensation with polymers obtained from petrochemicals.

10. *Fermentative conversion of corn sugar to industrial gumlike products.*—A survey of micro-organisms revealed 23 that produced interesting gumlike polymers. Six of these were selected for extensive development and evaluation studies. Industrial interest is encouraging, and continuation of the work is planned.

11. *Plant antibiotics by fermenting cereal grains.*—Screening micro-organisms for those producing antibiotics effective against plant diseases was initiated 5 years ago. About 2,000 have been screened, and some 20 have been found that produce antibiotics against such diseases as rusts, smuts, viruses, Fusarium wilt, and other plant fungi. Although progress is slow, the results indicate possibilities for eventually developing products derived from grain to replace part of the chemicals now used to control plant diseases and eliminate toxic residue problems associated with some chemicals.

12. *Microbial conversion of grains to feed supplements.*—A small but continuing segment of the program is directed toward the fermentation of grain products to feed supplements. Past USDA developments have resulted in commercial processes for the production of vitamins $B_2$ and $B_{12}$, and antibiotic supplements. Current research offers promise of a process for producing beta-carotene (source of vitamin A). Other studies are directed toward a fermentative process for xanthophylls—the natural yellow substances desired to give yellow egg yolks, yellow-skinned poultry, and butter.

13. *New fermentative transformations.*—(*a*) The ARS culture collection contains over 8,000 pure strains of bacteria, molds, and yeasts. It is the largest collection of industrially important micro-organisms in the world. Besides being a source of micro-organisms for developing new processes and products in USDA utilization research, services include the distribution of over 2,000 cultures each year to fill requests from industry and research institutions.

(*b*) Continuing taxonomic investigations are carried out to characterize new organisms for use in screening investigations.

(*c*) Current screening investigations include fleshy fungi (mushroom type) to discover strains producing potentially useful products from grain-derived substrates.

14. *Composition of cereal grains.*—(*a*) Basic studies on high-amylose corn proteins to support applied research on the milling of this new corn.

(*b*) Isolation and characterization of the pellagra-causing factor in corn. This work is nearing successful completion.

(*c*) Isolation and characterization of the viscosity-producing constituents of oats. This work is nearing completion.

### B. Cereal Utilization Research With Base Funds at the Western Utilization Research and Development Division, Albany, Calif.

1. *Food uses of cereals.*—(*a*) Chemical and physical research is being conducted on the proteins, carbohydrates, and lipids (fats), and the manner in which they interact to produce properties desired in many types of food products derived from wheat and rice. At present, particular emphasis is being placed

on the interaction of the proteins of wheat with the natural fatty materials. These combine to form complex molecules called lipoproteins which are vitally related to the performance of flours in breads and related food products. Our research has shown that these components, though present in just over trace amounts, are responsible for the spongy texture of bread; affect the spread, during baking, of items such as cookies; and when combined with still other components in flour, influence surface browning during baking. Studies on what these fatty materials and protein materials actually are, how many of them there are, and how they fit together, are being given major emphasis. As more knowledge is gained, it will be used for determining what alterations in present baking practices will yield superior products, for devising new food products, and for developing new uses of the isolated components.

(*b*) Proteins are important structural elements of cereals. Research has shown that these form a three-dimensional framework connected through a particular chemical grouping called a sulfhydryl group. As flours age normally or are treated with chemicals during milling and baking, these sulfhydryl groups are altered, resulting in changed elasticity and ductility of the doughs. Research is aimed at control of these groups, since if control could be achieved, flours that formerly were of borderline acceptability might well be utilized for the preparation of superior products.

(*c*) New mechanized production methods and increasing centralization of baking plants aggravate problems in producing breads of top quality flavor and aroma. Research is being conducted to learn the chemical nature and identity of substances that make up the aroma and flavor of freshly baked bread in order to devise ways to produce and retain larger amounts of these substances during modern baking procedures. Nearly 70 compounds have already been identified in breads and doughs, and investigations of how these compounds form during fermentation in doughs, or liquid mixtures to be used in doughs, are being emphasized.

(*d*) Final developmental studies on canned bulgur, a parboiled wheat food product, are underway. Semi-pilot-plant scale preparations of bulgur, flavored with meat or poultry stock, have been made for consumer trials. A Midwest growers organization has offered financial support for commercialization of these products.

(*e*) Work has been completed on an improved form of canned pearl rice, and samples have been furnished widely to interested food companies. Development of superior quick-cooking dry rice and of an instant hot breakfast cereal from white rice is nearly complete. Cooperative work in progress with the California Experiment Station concerns effects of preprocessing variables on the processing behavior of California rices. Color, milling, and cooking properties all have been found to be affected by the relative maturity of rice at the time of harvest.

(*f*) Engineering studies in commercial rice-processing plants by Department scientists have shown that the benefits obtained on western shortgrain rice by newly discovered improvements in drying procedures can also be obtained on southern medium-grain and long-grain rices. It has been shown that plant drying capacity can be increased as much as 50 percent without loss of rice quality. These studies are substantially complete and indications are that the annual income of rice growers and millers might be increased several million dollars.

(*g*) The compositions of flours produced from soft wheats grown in the Pacific Northwest are being studied with respect to their performance in such diverse products as cookies, doughnuts, biscuits, pastries, and the like, in an effort to discover factors that control the function of flour components in these bakery foods. The recent development of new fine-grinding and air-classification methods being adopted by the milling industry has opened new lines of investigations since it is now possible to separate flour into fractions of varying protein content. The use of high protein, soft wheat flour fractions for all types of food products, including bread, is now under investigation.

2. *Feed uses of cereals.*—Studies are underway, in part under contract, on methods of increasing the value of wheat, barley, and wheat millfeeds in rations for poultry and livestock. Practical methods are being sought to take advantage of increased values of these grains in broiler-type poultry rations when they are treated by a newly discovered steeping process. The mechanism is being investigated by which this improvement, as well as that obtained by supplementation with commercial enzyme mixtures, takes place. Following the dis-

covery that wheat bran and germ contain biologically active materials of an estrogenic nature, work is being initiated to develop practical methods of extracting and concentrating the active materials for use in fattening rations for livestock and poultry.

3. *Cereal proteins as food and industrial materials.*—Basic studies of the isolated proteins of wheat are elucidating the desirable properties of one of these known as gliadin. This protein can be whipped into thick, copious foams resembling those from egg white. When mixed with egg white, meringues of superior stability and volume are obtained. Gliadin can be used in other types of food foams such as marshmallow-type cold toppings and the like. Its usefulness as an emulsion stabilizer presents many possibilities in the area of coatings or adhesives, or as adjuncts in laundering mixtures to prevent redeposition of particles of dirt after they have been loosened from clothing by detergents.

### C. Cereals Utilization Research To Be Conducted Under Budget Increase

An increase of $506,600 for cereal and forage crops (the total increase is $1,206,600, including $700,000 by redirection from farm research) to develop means to increase industrial use of cereal grains.

#### NEED FOR INCREASE

Cereal grains, especially wheat, corn, and grain sorghums, continue to be the primary farm surplus problem. Production is likely to continue to be greater than utilization unless substantial additional outlets can be developed. The discovery and development of large, new or improved industrial uses for cereal grains offers the most fruitful means for using more of them. Essential to the attainment of this goal is an intensified program of research and development supported by comprehensive fundamental studies. Present knowledge indicates that initiation of research or expansion of present work in the following fields holds much promise of success:

*High-amylose starch and derivatives.*—The development through breeding research of commercial corn hybrids with starch of 80 percent or more amylose (three times that of ordinary dent corn) is anticipated within the next few years. The availability of starch of this type at a price comparable to that of ordinary cereal starches would not only strengthen the position of starches in present outlets and expand their use in the paper and textile industries but also should lead to new applications such as in packaging materials and coatings. To establish these uses, research is required to develop procedures for processing high-amylose corn, for producing amylose starch derivatives, and for modifying them to meet specific industrial needs.

*Microbially produced insecticides and industrial chemicals.*—Such industrial chemicals as organic acids and enzymes and such agricultural chemicals as antibiotics, growth-regulating substances, defoliating agents, and herbicides can often be produced more cheaply by fermentation processes than by other means. Exploration of the fermentation approach for producing these chemicals from grain should be intensified. Special attention should be given the development of processes for the mass production of infective micro-organisms and spores for use in the control of insect pests. Successful methods for the production of microbial agents effective against such pests as the Japanese beetle, corn borer, alfalfa caterpillar, tobacco and tomato horn worms, nematodes, and cotton boll weevil would have excellent potential for utilizing appreciable quantities of grain.

*Milling and milled products of wheat.*—Wheat flour and other mill fractions are among the most plentiful agricultural raw materials available at low cost. Cost is a principal consideration in the use of any cereal product especially in industrial uses where it usually competes with synthetic products. There is intense interest in the flour-milling industry today concerning the potentialities of producing a variety of new food, feed, and industrial products from wheat by application of physical methods for the separation of wheat components. Full potentialities of these physical methods of separation should be explored for producing a range of starch-, protein-, bran-, and fiber-rich fractions. These fractions and their chemical modifications should be evaluated to assess and promote their industrial utility.

*Supporting fundamental and exploratory research.*—Fundamental and exploratory research on the properties of cereal components has not been commensurate with the value and importance of cereal crops. As a result, too few facts are available to provide bases for conversion of cereal grains and their components

into a wider range of industrial products. An expanded program of fundamental research is essential to advances in this field.

### PLAN OF WORK

The expanded program of research and development on cereal grains would include:

1. Development of industrial uses for high-amylose starch and its derivatives, industrial applications for purified amylose and its derivatives, and a practicable process for making purified amylose.
2. Exploration of fermentation as an economic means for conversion of grain into microbial insecticides and into new or existing industrial and agricultural chemicals.
3. Development of processes for efficient and economic separation of wheat into a variety of milled fractions adapted to food, feed, and industrial uses; and chemical modification of the fractions suited by reason of price and properties, to fit them better for specific industrial applications.
4. Fundamental and exploratory chemical, physical, and microbiological research to support applied and development investigations, and to provide the basis for the discovery of new concepts, reactions, and principles leading to new processes and products.

### NEWLY DEVELOPED CEREAL PRODUCT—PHOSPHOMANNAN

Dr. IRVING. You may be interested to have me rapidly demonstrate one of our new products. You hear so many words from me and others about industrial chemicals we thought you would be interested in seeing this one. You perhaps recall the product, dextran, that was produced in our Peoria laboratory some years ago as a blood volume expander. What we learned from that research is teaching us lessons that may help develop new industrial products from cereals. I have one in my hand. This product is produced by yeast on starch as the fermenting medium, and it is called phosphomannan.

About 2 percent of the product resulting from the fermentation was dissolved in water to produce this product. This, as viscous as it is, is principally water. This product is of interest to industry in a good many ways. They are evaluating it in cosmetics, pharmaceuticals, oil-well drilling muds, flooding solutions, and so forth. You can see [demonstrating] that it has a tenacity and viscosity combination that is unique.

Mr. WHITTEN. It is good to find out it has a use, because it is certainly interesting as a curiosity.

Dr. IRVING. Would you like me to go to the next item, cotton?

### RESEARCH ON SIZING AND OTHER MATERIALS FROM STARCH

Mr. SANTANGELO. There is just one other question. At the Peoria research center, were you working on wheat in order to obtain some paint? What has been the development with respect to your project there in trying to develop paint out of wheat?

As I recall it, when I was out there a couple of years ago with the committee, you were on a program trying to develop a use of paint out of wheat. Now, that was somewhat surprising. I am wondering whether you have continued that, and what has happened to that program?

Dr. IRVING. I think what you have seen there is our attempt to develop coatings, sizes, and adhesives from modified starch derived from wheat and other cereals. The textile and paper industries use sizing materials made from starch, and they are also using a good

many synthetic materials for the same purpose now. We have developed, for example, a substance known as dialdehyde starch, by chemical modification of wheat starch or cornstarch. It has novel properties in the tanning of leather, and in providing increased wet-strength for paper, and so forth.

I don't know that we have tried to make from cereals paint as we know paint. But certainly coating materials of a great variety can be made from modified starch. Perhaps that is what——

Dr. SHAW. They could be colored.

Dr. IRVING. Oh, yes.

Mr. SANTANGELO. What has been the development at the Peoria Research Center?

Dr. IRVING. The dialdehyde starch development is the one currently showing the greatest promise in our cereals work. We are devoting a considerable amount of funds at the Northern Laboratory to pursue it. We also have a number of contracts to evaluate dialdehyde starch as a tanning agent and as a paper additive. We would like to illustrate for you what we have done with dialdehyde starch in paper. It is a most dramatic demonstration. If you take this piece of untreated paper and soak it in water, and this piece of dialdehyde starch-treated paper, and soak it in water, you will find, if you pull them, that the treated piece has considerable wet strength. The untreated paper has little strength. With the dialdehyde starch-treated paper it takes a pretty good pull to break it, and soaking for a matter of hours won't change this property. There is no problem in telling the treated from the untreated. If you would like to try the test yourself, you can tell immediately which one has been treated and which one untreated.

There is a possible market in paper for the starch from more than 100 million bushels of cereals, chemically modified to produce industrial chemicals of this type.

Mr. HORAN. Could you use that on waterproofing containers, carton containers, and that sort of thing?

Dr. IRVING. It does have some waterproofing properties, but the imparting of wet-strength is the chief factor which we are seeking here. This is the same chemical, by the way, which is capable of tanning hides to produce leather, and which was demonstrated here last year, I believe, among some of the products we have developed. It would not displace any domestic product, but would displace imported tannins. But these are now only potential uses. Dialdehyde starch is now being produced commercially in ton quantities for wide-scale industrial evaluation. It is quite likely they will find additional uses, and to that extent we can anticipate increased use of cereal grains for producing this chemical.

### TOBACCO UTILIZATION RESEARCH

Mr. NATCHER. Somewhere in your statement I know you are going to mention tobacco. You know, this country owns $19.5 billion worth of gold. According to the information we have, foreign countries have claims against our reserve totaling approximately $9 billion. $12 billion is the amount required to back up our currency. If this $9 billion is called in we are in bad shape financially. Judging from the tobacco monopolies' common market agreements and tariff matters that have been brought to my attention during the past few months, and the situation generally concerning gold, you and I may

live to see the day that tobacco will be used in place of gold. We have suffered and are continuing to suffer from the common market countries' provisions and from many other sources. Apparently we are being ignored.

You and I well know that tobacco produces about $2.5 billion a year in taxes. I have carefully examined this fine publication that you have distributed to the committee. This is Bulletin No. 209 on "New Uses of Farm Products," and the statement entitled "Progress and Prospects in Agricultural Utilization Research," and also the summary report here, Dr. Irving, that was prepared for the Senate subcommittee, and maybe I have examined these publications too hurriedly, but I don't find anything in here about tobacco. I hope that before you finish, somewhere along the line you are going to mention tobacco, and give us something that has been done during the fiscal year 1960.

Thank you, Mr. Chairman.

PROGRESS IN TOBACCO RESEARCH

Dr. IRVING. We might take this opportunity to tell what we are doing on tobacco, Mr. Natcher. The research program in utilization is entirely at the eastern laboratory, and it is entirely a basic research investigation at the moment, to learn some things which we should have learned, or science should have learned long years ago, namely, what does tobacco contain and what does tobacco smoke contain? Our objective here is to identify the nature of the constituents of tobacco, and how they contribute to tobacco quality. Once we know them, then we can determine how we can improve upon the good qualities of tobacco and eliminate any bad qualities it might have.

Mr. NATCHER. Dr. Shaw you stated that there were no new projects for tobacco. You are working on none in fiscal 1960, and you have no new research projects concerning tobacco for 1961. We need help, and new research now.

Dr. SHAW. No increased funds. We have some new projects. We delete some things and start others; we have no new funds.

Mr. NATCHER. Mr. Chairman, tobacco is one of the most important cash crops in America, with a farm market value of more than $1 billion. Today, it ranks fifth as a crop in terms of income to farm people. It is grown on 580,000 farms involving some 750,000 farm families in 22 States. The tobacco farmer provides the raw material for one of the major industries in America. Tobacco taxes contribute about $2½ billion annually to the support of Federal, State and local governments. $1.7 billion goes into the Federal Treasury and this does not include indirect taxes. Prior to the establishment of the income tax in 1913, for many years the second largest return to the Internal Revenue Bureau came from the impost on manufactured tobacco and related taxes.

Taxes alone amount to more than twice the income to tobacco farmers. In considering research, this in itself justifies a more adequate tobacco research program.

Our tobacco program is not one of Government regimentation but is a program which permits the farmer to play the leading part in keeping supply in line with demand. At all times our tobacco producers have cooperated with the Department of Agriculture in the tobacco program, and when reductions in acreage were necessary, our people took the reduction and continued their full support of the tobacco program. Since the war, tobacco acreage has been reduced almost 50 percent.

Even though tobacco is included as one of the basic commodities in the CCC program, the tobacco program has cost the Government little or nothing in the way of public price supports.

From time to time, we have been informed that we are pricing ourselves out of the foreign market. Accepting this view during the present session of the 86th Congress, H.R. 9664 was passed. Under this legislation, the parity price was tied to the 1959 level. The purpose of this bill is to prevent the operation of the present parity formula from pushing the support price of tobacco beyond limits which the tobacco industry believes to be reasonable at present general price levels. Under the terms of this bill, the tobacco support level for 1960 will be the same as in 1959, and in subsequent years the support price will be adjusted from the 1959 level in direct proportion to change in the parity index using the previous 3-year moving average as a base.

When tobacco is in trouble, Kentucky is in trouble. Approximately 46 percent of the total farm income from agricultural commodities in Kentucky is received from tobacco.

We must continue our fight for freer world trade if we intend to assist our tobacco producer. During the past few years, 60 countries have raised the import duties on tobacco and tobacco products. A number of these countries are recipients of our foreign aid, but for some reason we shy away from any position which would indicate to the countries involved that certainly we do not approve of such treatment and any objection from us is always too feeble.

Only recently the Common Market countries entered into an agreement which places a 30-percent ad valorem tax on our tobacco. This tax does not apply to the tobacco produced in the six Common Market countries and certainly is not only restrictive but is an unreasonable tax which has for its purpose complete exclusion of our tobacco for the next 10 years.

Mr. Chairman, our own subcommittee in its travels to the Pacific and Far East on October 23–December 10, 1959, discovered some of the problems confronting tobacco today. In the report of the Agricultural Subcommittee's trip which is a part of the hearings will be found the following statement:

> We also visited the La Suerta Tobacco Co. in Manila to observe manufacturing processes and discuss use of American tobacco. While American tobacco is generally preferred, tobacco manufacturers are unable to get all they want because of a government program now in effect favoring local production of tobacco.

We know full well that the tobacco industry is undergoing scientific and technological changes that have so significantly affected American agriculture as a whole, that tobacco has been neglected in terms of an adequate research program that would provide for its progress and welfare. It still requires between 400 and 500 hours of human labor to produce and harvest an acre of tobacco.

I am offering for the record, Mr. Chairman, a proposed research program for tobacco which, if adopted, will provide adequate, basic, and fundamental research in production, marketing, quality, and utilization of all types of tobacco and which will assist us in our domestic and foreign market programs. The research program for tobacco is as follows:

TOBACCO RESEARCH NEEDS

In 1959 tobacco was grown on a total of approximately 1,154,000 acres in 22 States of the United States, and was a major source of income in 8 of these States. Total production of tobacco in 1959 was about 1,800 million pounds, which brought over $1 billion in cash income to producers.

In terms of cash receipts from the sale of crops in the United States, tobacco was exceeded in value by only four crops in 1958 (table 1).

TABLE 1.—*Cash receipts from United States farm marketings by crops, 1958*

| *Crop* | *Million dollars* |
|---|---|
| Wheat | 2,253 |
| Cotton | 1,928 |
| Corn | 1,412 |
| Soybeans | 1,117 |
| Tobacco | 1,007 |
| Sorghum grain | 569 |
| Potatoes | 373 |
| Hay | 299 |
| Barley | 289 |
| Rice | 233 |
| Oats | 213 |
| Peanuts | 203 |

Source: "USDA Farm Income Situation."

In the eight major tobacco-producing States, tobacco is an even more important source of farm income (table 2).

While the number of farms in the United States has declined steadily over the past 20 years, tobacco farms have remained stable in number. In 1958 there were 580,000 tobacco allotments of all types. Many tobacco allotments are produced by tenants and it has been estimated about 750,000 farm families are engaged in the production of tobacco.

TABLE 2.—*Income from tobacco and tobacco income as a percentage of total cash farm income and cash income from the sale of crops, major tobacco producing States, 1954–58 average*

| State | income from tobacco (million dollars) | Tobacco income as percent of— | |
|---|---|---|---|
| | | Total cash receipts | Cash receipts from crops |
| North Carolina | 469 | 49.4 | 67.5 |
| Kentucky | 227 | 41.5 | 79.7 |
| South Carolina | 85 | 25.3 | 35.0 |
| Virginia | 81 | 18.1 | 40.2 |
| Tennessee | 73 | 15.6 | 31.4 |
| Georgia | 60 | 9.1 | 18.5 |
| Connecticut | 22 | 13.3 | 39.0 |
| Maryland | 18 | 7.5 | 23.4 |

Source: Computed from data in USDA Farm Income Situation.

Tobacco production requires approximately 400 man-hours of labor per acre. Total farm labor requirements for the 1,154,000-acre crop represents equivalent full employment for some 192,000 people for 300 8-hour days per year. In addition to this farm employment in producing tobacco, the tobacco manufacturing industry employed 84,400 workers in 1957. Many other thousands

were employed in the distribution system for tobacco products. Exclusive of Federal and State taxes, it is estimated that the 1958 crop of tobacco was worth approximately $4 billion at retail—$3 billion was added in value through manufacture, materials, transportation, and storage.[1] This business created employment for thousands of nonfarm workers.

An example of the materials purchased by the tobacco industry can be gained from National Production Authority allocations to the tobacco industry in 1951: 2,000 tons of thread and twine, 4,600 tons of cotton belting, and 45 million square yards of cotton cloth. During the same year the tobacco industry used 28,000 tons of sugar, 3,600 tons of molasses, and 15,000 gallons of vinegar. The straw from more than 200,000 acres of flax is used to produce the paper required by the cigarette industry. The tobacco industry thus is a heavy buyer of products originating from the farms of America.[2] In addition, farmers purchase large quantities of fertilizer, chemicals, insecticides, and machinery and equipment for tobacco production.

Tax revenues from tobacco products are a major source of income to the Federal and State Governments. In fiscal year 1957–58 the Federal Government collected $1.7 billion in tobacco taxes. State and municipal taxes raised the total tax collections from tobacco products to about $2.5 billion—more than twice the value of the tobacco at the farm level.

Tobacco thus contributes not only to the many farm families engaged in its production, but also to the welfare and employment of nonfarm people and to Federal, State, and local governments as an important source of revenue.

### TOBACCO RESEARCH ACCOMPLISHMENTS

Research by the agricultural experiment stations has played an important role in all phases of the tobacco industry. All the major tobacco companies have their own research departments, but in general, it may be said that research by the companies deals mainly with characteristics of the cured leaf and matters involved in manufacture, while the agricultural experiment stations have concerned themselves with tobacco problems from the point of view of farm and market with problems of production and marketing, the means of protecting the crop against onslaughts of insects and disease, development of disease-resistant varieties, improvement of yields and quality, problems in curing, problems of labor reduction, and so on. In general also it may be said that the results of research by the tobacco companies are not available to the general public, especially insofar as those results tend to give the company an economic advantage—which is, after all, the main purpose of the research by the companies.

Tobacco farmers and marketing and distribution agencies must therefore look to the agricultural experiment stations for research, which is, of course, as essential to this branch of American agriculture as to any other. Research accomplishments in the tobacco States and the U.S. Department of Agriculture have, up to now, enabled tobacco farming to keep pace with American farming in general, though in some aspects, and particularly in mechanization, tobacco farming has not been able to keep pace.

### DISEASES

Over the past several decades diseases of tobacco, both in the plant bed and in the field, have posed what has seemed at times to be almost insurmountable problems to tobacco farmers. In fact, without the understanding of tobacco diseases and development of resistant varieties through research, tobacco could not be grown in many of the areas where it now is grown successfully. This research therefore is worth millions of dollars every year to tobacco farmers and the tobacco trade. Black root rot, tobacco mosaic, Granville wilt, wildfire, and fusarium wilt are being controlled solely by means developed by research, thus insuring farmers against crop failures.

Other diseases, such as black shank, are being partially controlled through resistant varieties and a knowledge of the organism.

### GENETICS AND CYTOGENETICS

Fundamental studies in genetics and cytogenetics of tobacco and of organisms causing tobacco diseases are essential for a complete understanding of the host-

[1] Based on marketing margins reported by USDA Agricultural Statistics.
[2] Tobacco News, vol. 1, No. 2, June 1959.

parasite interaction. For example, wildfire resistance in tobacco was transferred from a wild relative in the genus *Nicotiana*. A genetic study on two resistant varieties derived from different source materials indicated that the transferred factor was located on different chromosomes. This basic knowledge saved years of time in tobacco breeding research.

By having genetically uniform plants, studies on nicotine production and other biochemical mechanisms can be studied without wide variations due to genetically different plants.

### INSECT PESTS

Control of insects is essential to producing high quality and high yielding tobacco. The USDA estimated that hornworms alone caused a loss of over $85 million to tobacco farmers in a recent year, even though most farmers followed a spray schedule of some kind to control these pests.

During the past 15 years effective control measures, mainly the use of new insecticides, have been developed against most tobacco insects. Lead arsenate and paris green have been replaced by cheaper, more effective chlorinated hydrocarbon or organo-phosphate insecticides.

Studies of the biology and taxonomy of the insects attacking tobacco, vital to the understanding and development of any control measures, have been an integral part of entomological research programs.

The life histories and classification of the tobacco budworm, false tobacco budworm, flea beetle, wireworm, and grasshopper have been investigated by tobacco entomologists, and these studies have provided essential information not only in regard to tobacco but also to entomologists working on other crops which these insects also attack.

### CHEMISTRY AND PHYSIOLOGY

Considerable work has been done by public-supported institutions on the chemistry and plant physiology of tobacco. This has been largely confined to studies of cured leaf in relation to nutrient uptake, alkaloid production, and sugar content. Some work has also been done on chemical and physical changes during curing. Considerable progress has been made in relating alkaloid content to genetic characteristics and also to environmental and cultural factors.

Development of a rapid method for alkaloid determinations has been a recent major accomplishment of the Kentucky Agricultural Experiment Station. The apparatus for this method has been patented and is presently in use in numerous research laboratories throughout the tobacco industry.

The rapidity with which alkaloids can be determined by this method has enabled researchers to use it in a breeding program.

It is theorized that the chemical content of cured tobacco is related to the chemical content of the very small plants. The technique has been developed to grow thousands of plants in individual test tubes and analyze them for chemical characteristics. Those with favorable chemical content are picked out and these strains or varieties are used in the breeding program. The others are not considered further. Thus a screening process is developed in the laboratory and growth chamber rather than growing plants to maturity in greenhouse or field trials. Time and money are saved.

### PRODUCTION MANAGEMENT PRACTICES

Research on fertilizing tobacco and on the use of rotations has been conducted for over half a century. This work has shown the value of a rotation for producing good quality tobacco. The results of fertility and production research coupled with disease resistant varieties have in the last 30 years doubled the average yield per acre flue-cured and burley tobaccos. It has been shown that the correct amount of fertilizer improves tobacco quality but that too much fertilizer results in poor quality.

Curing studies have established the proper stage of ripeness for harvesting tobacco and the best environmental conditions for curing in the barn when present harvesting methods are used.

Herbicides for weed control in plant bed and in field have been tested. Certain herbicides have proven very successful for weed control in plant beds, and some of the new materials show promise for field weed control. It appears that there may be considerable leeway in method of application; some materials can be incorporated with the soil before transplanting the tobacco while others may be applied as a spray, before or after transplanting.

### MARKETING

Several agricultural experiment stations have studied the nature and organization of the tobacco auction market, its history and development, and some research has been done for better methods of handling and moving tobacco in the warehouse operation, using the techniques of time and micromotion analysis. Pioneering work has been done in studying the demand relationships among different types of tobacco used in cigarettes in connection with trends and changes in cigarette composition. Factors affecting price dispersion for tobacco on the auction markets have been studied, isolating some of the important causes of grade-price variability for tobacco on the auction floor.

Research currently in progress in tobacco marketing includes a study to determine the optimum scale of operation for tobacco warehouses (which should provide important market management guides) and an examination of the potentials of balanced artificial lighting as an aid to improved farm sorting and auction sale of tobacco.

## The Research Needs

While much good tobacco research has been done, much remains to be done. As is true in other branches of agriculture, in industry, and in all areas of endeavor, the need for new knowledge is never ending. Change is the order of the day. Progress in one branch of the subject calls for new research and reappraisal in others. It has been aptly said that we have to run hard in order to keep from losing ground.

We have reached the point in the development of our tobacco industry where more basic, fundamental research needs to be done in the production, quality, and distribution fields. In order to reduce to a minimum the duplication of research activities, there are rather compelling reasons for establishing an industry-wide research center that would work on these fundamental problems. This research would be closely integrated and tied in with that going on at the Agricultural Research Service tobacco stations in North Carolina and Tennessee, and at the respective agricultural experiment stations. Undoubtedly the challenging problems now facing the industry call for an expanded, intensified program.

As illustrations of the need for new and intensified research, some areas are suggested in the following section of this report without any attempt to be exhaustive in terms of research needs.

### MECHANIZATION

Less research has been done on mechanization of tobacco production than for other major crops, and work methods used in tobacco production are still almost entirely manual. Approximately 400 man-hours of labor are required to produce an acre of tobacco in the United States, and this has changed very little over the past 50 years. Labor requirements for other major crops, on the other hand, have been strikingly reduced. In 1910–14 the labor requirement was 44 man-hours per 100 pounds of leaf for all types of tobacco, 135 man-hours per 100 bushels for corn, and 106 man-hours for 100 bushels of wheat.[3] The requirement for tobacco is still about the same, 43 man-hours per 100 pounds of leaf, but for corn the labor requirement is now only about 12 to 15 man-hours per 100 bushels, and for wheat only 8 to 10 man-hours per 100 bushels.

American tobacco producers are facing competition from foreign growers because most of these countries can produce at a lower unit cost than American farmers. Lower production costs through mechanization could meet and overcome this competitive threat to an important industry.

A USDA study[4] reports that typical tobacco farms returned from 70 cents to 86 cents per hour to farmers and their families for labor, whereas typical mechanized cotton farms returned $3.42 per hour for family labor.

Cotton production, like tobacco, has traditionally required excessive amounts of manual labor. Cotton harvesting presented a particularly difficult task for machine operation because the harvester needed to select the mature cotton, leaving the immature for later harvest. This obstacle and other difficulties have been overcome and mechanization has progressed to the point where cotton can literally be produced from the tractor seat. It is not unusual to see a cotton-picker working in a field where a few years ago 10 to 20 transient laborers

[3] Hect. R. W., and Barton, G. T., "Gains in Productivity of Farm Labor." USDA Tech. Bul. 1020. December 1950. table 2.

[4] Agricultural Information Bulletin No. 176. USDA Agricultural Research Service. "Farm Cost and Returns, 1956." Published June 1957.

picked the same field. This machine is not only doing more work and better work than the hand laborers, but it is making more profit for the farmer. Tobacco producers also can look forward to increased profits through improved production efficiency if needed research on tobacco mechanization is carried out.

It would appear that tobacco mechanization would be more beneficial to the larger producer who must hire a large amount of seasonal labor, but mechanization could also reach the small producer through custom operation.

Labor requirements for tobacco production are logically divided into (1) establishing the crop in the field, which presently includes production of plants in a plant bed, land preparation, and transplanting; (2) harvesting and housing, which includes the four manual operations of topping, suckering, harvesting, and housing; (3) curing and preparing the leaf for market.

Engineering analysis and research to date indicate that there is a high probability that tobacco can be planted directly in the field, harvested and handled by machines, and cured under controlled conditions with much saving of labor in each operation. From research at the Kentucky Agricultural Experiment Station during the past 2 years it seems evident that direct field planting could save approximately 95 percent of the labor required to establish the crop in the field. This would reduce the labor required by 63 manhours per acre. Kentucky's preliminary work on stalk harvesting of air-cured tobaccos indicates that at least 75 percent of the harvesting labor could be saved by mechanical harvesting. This amounts to approximately 43 manhours per acre. Other experiment stations have worked on leaf-harvesting and bulk-curing of tobaccos. This work likewise indicates significant laborsaving through mechanization.

Some of the immediate problems that need solving in the area of direct field planting of tobacco seeds are (1) to determine optimum soil temperature, soil moisture, and soil density or aeration for germination and emergence of seeds and for early growth of plants; (2) to study methods of improving the uniformity of germination and emergence and methods of decreasing the time required for germination and emergence of coated tobacco seeds; (3) to develop machines to manipulate the soil and perform other functions necessary to create best physical environment, and to plant seeds at proper rate and spacing; and (4) to develop methods of controlling the weeds that compete with the small tobacco plants for moisture and nutrients. Such control of weeds may involve plastic mulch, preemergence soil chemical treatments, or other methods.

Expanded research in harvesting and housing stalk-cut tobacco should develop fundamental principles whereby machines can be designed to cut and house tobacco. This work will necessarily involve further study of curing stalk-cut tobacco, as curing methods might need to be altered in some respects in order to facilitate mechanical harvesting and housing. Fundamental work on the curing of air-cured tobaccos is an absolute necessity for the development of improved machines for harvesting, handling, and preparing tobacco for market.

Agricultural experiment stations will have to provide the leadership in any tobacco mechanization research program. The engineers and plant scientists at these stations are acutely aware of farm problems and can work together to develop the principles for design of economical machines. Machinery manufacturers than can use these principles to design the machines that are needed.

### INSECTICIDE RESIDUES AND BIOLOGICAL PEST CONTROL

Even though modern insecticidal residues on tobacco are less hazardous to the consumer than arsenical residues, research should be started to eliminate all potentially harmful insecticidal residues. The effect of the curing process on residues should be examined.

How does flue-curing compare with air-curing or fire-curing in decomposing various insecticidal residues? Can changes in harvesting or curing tobacco help eliminate residues? More new insecticides with short residuals need to be developed for use shortly before harvest. The effect of smoking on residues needs investigation. How much of what residues are decomposed during the smoking process? How much residue is inhaled in the smoke, and what, if any, are the physiological effects on the smoker? All these are problems that call for further research.

Although present-day insecticides are very effective, they have some serious disadvantages besides the problem of residues. Insects may, and some have, become resistant to many insecticides. The use of insecticides kills predators

and parasites which help control the insect pest, leading sometimes to a resurgence of the insect pest population or to the buildup of a hitherto nonimportant insect to the status of a destructive pest. Insecticides also may be hazardous to apply and special equipment is needed for such applications.

Some work has been started on the use of resistant tobacco varieties for the control of several insect pests, but this field is relatively unexplored. The major insect pests of tobacco need to be studied in this respect just as the tobacco pathologists have studied resistance to disease organisms. Promising leads on the use of predators and parasites and disease organisms, such as *Bacillus thuringiensis* for the control of hornworms, need more extensive research. The nutrition of the tobacco plant undoubtedly plays an important part in the development of insect pest populations but practically no work has been done in this field. It may be possible to control or reduce insect populations on tobacco by manipulating the fertilization and cultivation of tobacco.

Many new advances have been made in equipment for applying insecticides during the past 20 years. The development of low gallonage-low pressure spray equipment, for instance, has reduced the time and labor needed to treat tobacco. New techniques and new machinery might enable the farmer to reduce even further the labor needed for spraying. They might make it possible to combine his spray operations with other normal farm practices used in producing a crop of tobacco.

Etch has recently become an important disease of tobacco in Canada and other tobacco producing areas. There is some evidence that insects may be involved in the transmission of this and some other diseases of tobacco. The present and potential role in dissemination of diseases to tobacco by insects needs to be investigated more closely by the tobacco pathologists and entomologists.

### MARKETING

Tobacco marketing problems yet awaiting study and analysis are ponderous. The trend toward a shorter sale season for tobacco has come with controlled production and increase in number of auction warehouses. Because of the comparative lack of adaptability of such facilities for other uses, it is questionable whether they are not more units and higher costs than are needed to provide growers with required services. Rising price trends in tobacco have not made this question as apparent for tobacco as for some other farm products, but the interests of market efficiency call for a careful appraisal of this question.

Allied with the problem of number of markets is the question of efficiency of operation of existing units. Can a well-designed warehouse making use of currently available engineering advances bring more efficient handling in the warehouse? This question has been voiced repeatedly by the Tobacco Research and Marketing Advisory Committee in its recommendations for new research in tobacco. It needs analysis.

The storage of tobacco in the market channel between the producer and the final user also is not without its problems. During some market seasons, handling of tobacco becomes a bottleneck because of rapid sale and limited redryer facilities. The whole problem of tobacco conditioning for hogsheads and storage calls for objective study in a search for more efficient coordination of tobacco delivery, sale, and movement to storage.

Another vexing tobacco marketing problem which calls for effective research is the problem of market grades. With dramatic changes in cigarette manufacturing, the present system of grading tobacco appears to fall far short of today's requirements. A search for a new set of standards for grading tobacco is urgently needed. Such a quest must take account of the rising importance of chemical properties of the leaf, along with the traditional physical characteristics. Further, the cooperation of the major tobacco processors and of the Federal agency normally performing this market function must be sought and obtained.

### CONTINUATION OF EXISTING RESEARCH PROGRAMS

The new is always spectacular, and research on mechanization, residues, and current problems must not be done at the expense of fields of research that have contributed and still are contributing so much to the tobacco industry.

Several tobacco diseases have not been extensively studied, since they are not a constant threat to production. The virus diseases, etch, ring spot, and streak occasionally cause losses in specific areas but have not been thoroughly studied. The fungus diseases, anthracnose and frog eye occasionally cause severe losses and also need added attention. All disease-causing organisms propagate, and are

therefore capable of change. A change from a less virulent strain to a more virulent strain is entirely possible and, in fact, has occurred in the black shank organism. This kind of change is a constant threat and one that pathologists fully recognize. Fundamental studies on the organisms that cause disease and their action on the host are, without doubt, desperately needed.

Potentially, black shank is the most serious disease facing the tobacco grower. Strains of the organism causing black shank have been found that kill the most resistant varieties of tobacco now grown. In fact, previously promising sources of resistance in tobacco breeding have been found to be of no value when these virulent strains are present. A monetary value could not be placed on what a tobacco variety resistant to all strains of the black shank organism would be worth to the tobacco industry.

Research in the chemistry and physiology of tobacco has increased tremendously in recent years. Much of this work, however, has been done by manufacturers. Some, but not all, of this information is available to others. It is not expected, of course, that research in this area by public-supported institutions should duplicate all that is being done by industry; rather the research by the two should complement each other.

The study of chemical constituents of tobacco needs to be continued to aid the plant breeder in producing varieties of desirable composition and to provide information that will enable the farmer to put on the market a product desirable to the manufacturer and to the consumer.

There is a need for fundamental knowledge in biochemistry, enzyme reactions and the pathways of synthesis of tobacco constitutents. Once the pathways of the synthesis of alkaloids have been elucidated the plant breeder may use this knowledge in his program to develop a more desirable plant. Often in plant breeding a plant is discarded because of some undesirable characteristics when it possesses very desirable characteristics which should be used. With more fundamental knowledge of plant metabolism such plants may be salvaged for their desirable factors. Once the series of reactions that are involved in alkaloid synthesis are determined, then steps may be taken to alter these pathways in order to produce more desirable tobacco.

New varieties of tobacco resistant to the major diseases are constantly being developed. These new varieties differ genetically from the established ones. There is evidence that these new varieties respond differently to fertilization and other field management practices. More fundamental information on the physiology of root growth, nutrient uptake, and environmental effects on plant growth is needed before these varieties can be property evaluated. Additional information on curing will be necessary if harvesting methods change as a resulting of progress in mechanization.

## Summary

Research has been the lifeblood of an expanding farm tobacco economy. Problem after problem—some anticipated, some not—have faced this industry. With a good background of fundamental research, these problems have been met fairly successfully on the whole, but no sooner does this occur than new ones appear. The number and complexity of these problems have increased in the past few years, and if this industry is to remain strong, research must be intensified.

Much fine research has been done in tobacco production and marketing by the agricultural experiment stations of the tobacco-producing States and the USDA. Much of this research has been of the applied type, done with limited resources. Since fundamental studies are basic to applied research, well-trained investigators and adequate facilities are necessary to answer the problems at present facing the tobacco industry.

Many of today's problems in nutrition, physiology, genetics, and cytogenetics, chemistry, entomology, and marketing call for the team approach. For example, the agricultural engineer, the agronomist, the biochemist, and the economist need to work together to solve the problem, associated with mechanical harvesting and curing. Today's approach calls for the highly skilled scientist, with adequate tools, laboratories, and equipment, to solve the problems which confront producers, manufacturers, and consumers.

The tobacco-producing States may need to use a cooperative regional approach to these problems, to have a strong research program.

Certainly any agricultural research program must not overlook the importance of a strong research program in tobacco, a major crop in this Nation, and a great source of tax revenue for our public treasuries.

Mr. WHITTEN. You may proceed, Dr. Irving.

INCREASE FOR COTTON AND WOOL UTILIZATION RESEARCH

Dr. IRVING. Our second item of increase is one of $603,700 for cotton, wool, and other fibers, which would be used, $503,000 for cotton research and $100,700 for wool.

Mr. WHITTEN. Where would that be done, and what would it consist of, and what is new about it?

Dr. IRVING. The cotton research would be done at our southern laboratory at New Orleans. The wool research would be done at our western laboratory, at Albany, Calif.

Mr. WHITTEN. How many folks do you have there, and what increase would you have in personnel, and what is it new that they would be doing that they are not doing now?

Dr. IRVING. We have about $2.5 million on cotton research at the southern laboratory now; about $800,000 on wool research at the western laboratory. This would mean approximately 120 or 130 professional personnel on cotton; approximately 40 professional personnel on wool.

Mr. WHITTEN. Is that the total you would have if this increase were granted?

Dr. IRVING. That is the base funds, Mr. Chairman.

Mr. WHITTEN. The additional personnel.

Dr. IRVING. There would be 30 additional professional personnel; about 80 percent of them on cotton, and 20 percent of them on wool.

Mr. WHITTEN. Thirty new people?

Dr. IRVING. Yes, professional people.

Mr. WHITTEN. Now, would that be to speed up or to run more tests; or just how would that fit in, to bring about any speedier result?

Dr. IRVING. We would use the major part of the requested increase on cotton to continue our studies on perfection of wash-and-wear fabrics, principally directed toward the major drawback of cotton wash-and-wear fabrics at the moment, which is their lack of resistance to chlorine bleaches, commonly used by commercial laundries, and the loss of strength—loss of tensile and tear strength—which cotton wash-and-wear treatments cause in cotton fabrics.

Mr. WHITTEN. Again, I come from an area where there is great interest in this commodity, like my friend from Kentucky. You have approximately how many people there now, and how much equipment do you have there that you are not able to operate because of shortage of people? And they have been working on these problems during the current year. How would the additional people do anything different from what you are already doing?

Dr. IRVING. It would permit us, with the additional people, to intensify work on lines of research which have already proved promising from exploratory studies and would permit us to open up new areas for chemical treatments of cottons which have not been explored, and cannot be explored with our present personnel.

Mr. WHITTEN. Could you list for us what you feel they are, either here or in the record?

Dr. IRVING. I think we can give you an idea here, and more detail in the record; but, for the present moment——

Mr. WHITTEN. If we buy this package, we are going to have to be the sponsors, and we are not experts in this field, as you people are. As I frequently say, I ask the toughest questions I can think of so you will give the best answers you have for whatever they are worth. I don't know what the attitude of the majority of the committee will be, but I do know that to justify increased funds, the present conditions in Congress require that we show the present personnel and the present expenditures, what they are doing with it, what there is that keeps the same personnel from doing the job at hand and why it takes additional people. That is the burden we will have in buying these requests for increases.

So whatever the facts justify, if they justify this, we want all of them in the record.

Dr. IRVING. It is pretty hard to give a simple answer to that last point of yours.

Mr. WHITTEN. The committee might understand a complex one, Doctor, if you tried hard.

Dr. IRVING. I wasn't meaning that it would take a simple one; I was challenging my ability to make it a simple one.

Mr. WHITTEN. I was being facetious, too.

Dr. IRVING. I think perhaps an example or two of how a research laboratory like ours operates might be helpful.

Mr. WHITTEN. May I say, feel free to enlarge your statements in the record, not only here but in connection with the other, because whatever justification you have, we want it spelled out.

Dr. IRVING. We have all of the people at the southern laboratory on cotton, working on important problems we know of today, the ones that have most promise. They are fully engaged on those problems and have no opportunity to undertake the additional work proposed with the increased funds that we are requesting. We would put additional people to work, some on present problems to help them go faster, and some on new problems, so that we can explore new possibilities for imparting new properties to cotton and expanding its market. That is the purpose.

Mr. WHITTEN. Now, in the record you can spell out what particular things these are, so you can support your general statement. We would have whatever case we have if you would do that.

(The information referred to follows:)

Expanded research on the chemical treatment of cotton would be concentrated in two areas of research: (1) the development of needed improvements in presently available wash-wear cotton fabrics, which are under great competitive pressure from synthetics; and (2) the development of a satisfactory, durable soil resistant treatment for cotton, since none of the present treatments is as effective as is needed.

During the last year more than 2 billion yards of cotton fabrics were chemically treated to impart wash-wear properties, but unless certain specific improvements are made in the performance characteristics of these fabrics, a large portion of the cotton used in their manufacture will be displaced by the newer types of synthetic fibers. Two of the principal improvements needed are greater resistance to chlorine bleaches and higher tear strength. Intensive research is now being conducted on these problems, but there are many sound approaches that cannot be pursued without the requested increase.

*Resistance to chlorine bleaches.*—Promising preliminary results have been obtained with formaldehyde, an inexpensive reagent that gives excellent wash-wear properties, but presently known formulations and methods of application greatly reduce fabric strength to below usable limits. New approaches, using formaldehyde donors as well as formaldehyde, and new types of catalysts would be thoroughly explored.

*Higher tear strength.*—Expanded work on this problem would include both fundamental and applied research. The fundamental research would provide additional information on why present treatments cause losses in tear strength, and the applied research would explore the use of new types of chemicals and new methods of application. New types of chemicals would include those that form a flexible bond within the cotton fiber. Research would also be expanded on the use of induced high frequency electric currents to give a more uniform curing of the wash-wear resins, which should reduce losses in tear strength.

*Soil resistant treatments.*—Since cotton soils easily, the development of an effective soil-resistant treatment would be of tremendous aid to cotton in its competition for clothing and household markets. In research to develop a satisfactory durable soil-resistant treatment for cotton, use would be made of basic studies made on the nature and location of common soils picked up by cotton fibers and fabrics, and of previous applied research conducted by the Department and by industry. A treatment would be sought that would give not only dry soiling resistance, but also resistance to wet and oily soiling. Durability to both commercial and home laundering would be one of the objectives.

## Southern Utilization Research and Development Division, New Orleans, La.

### I. FUNDS AND PERSONNEL

| | Fiscal year 1960 | Increase, fiscal year 1961 |
|---|---|---|
| Funds | $2,468,600 | $503,000 |
| Division personnel (average annual positions): | | |
| Professional | 131 | 32 |
| Subprofessional and other | 130 | 4 |
| Total | 261 | 36 |

### II. COTTON UTILIZATION RESEARCH CONDUCTED WITH BASE FUNDS (FISCAL YEAR 1960)

Cotton utilization research of a basic and applied nature is conducted in the broad areas of fiber structure and properties, chemical and mechanical processing and machinery development. The essential objective of the research on fiber structure is to obtain fundamental information on the supermolecular structure of the cotton fiber and its multiform relationship to fiber mechanical behavior. Research is being conducted to produce cotton products which have a wider range of usefulness and greater consumer appeal by improving the physical and chemical properties of cotton through chemical modification and improved chemical and textile processing methods. Cotton minimum-care products highlight much of this research effort. Machinery research is conducted to develop radically new concepts and equipment for producing higher quality and lower cost cotton textiles.

*1. Fiber structure and properties*

(*a*) Insight into the behavior of cotton obtained by microscopical observations aids research to improve products for increased utilization of cotton. Current microscopical investigations include the correlation of microfibrillar dimensions with physical properties pertinent to end-use behavior of fibers; comparison of microscopical phenomena associated with abrasion to elucidate the mechanism of wear; and comparison of patterns of deterioration of the cotton fiber under controlled chemical attack with a view to defining physical phenomena accompanying chemical degradation in treatment for use.

(*b*) Development of methods for measuring physical properties of cotton fibers and establishing relationship between structure and physical behavior are in progress. Current work includes basic research to relate changes in fibers caused by chemical and physical modification to physical behavior. Combinations of chemical and physical treatments to impart improved wash and wear characteristics are being investigated. Determinations are being made of the structural changes in cotton fibers caused by heating and mechanical working at gins and textile mills and the effect that these changes have on spinning efficiency and yarn quality. A method is being developed for rapidly preparing

suitable cotton fiber specimens for determining length distributions of cottons to enable spinners to select cottons by lengths to obtain improved processing efficiency and product quality.

*2. Mechanical processing*

(*a*) Current research on the effect of the properties of cotton fibers on product quality and processing efficiency and the effect of yarn and fabric structures on fabric properties and serviceability is conducted in full awareness of related programs in farm research, the Agricultural Marketing Service, and the textile industry and includes improvement of the competitive position of cotton by determining the effect of blending cottons of different fiber properties on product quality and processing efficiency; determination of the effect of short fibers in cotton on product quality and processing efficiency and the effect of fiber maturity on the dimensions of grey and finished fabrics as a guide to obtaining maximum utilization of available domestic cotton; development of an accelerated method for evaluating the spinning efficiency of cottons of different fiber properties; and the determination of the principal factors which cause end breakage during spinning to guide cotton processors in obtaining maximum processing efficiency from different qualities of cotton.

(*b*) Investigations are being conducted to develop processing principles, improved methods and processing organizations to obtain maximum product uniformity, and efficiency when processing untreated and chemically modified cottons. Current work includes determinations of the most feasible method for processing esterified cotton, and the effect that fiber friction has on the drafting force required to parallelize cotton fibers and the processing organization (drafts, roll settings, and pressures, etc.) required to obtain maximum yarn uniformity and strength.

(*c*) New products, based primarily on mechanical processing, now under investigation include: Lightweight wind- and water-resistant dense cotton fabrics for military and civilian uses; winter weight cotton fabrics having good warmth properties and dimensional stability after repeated laundering and drycleaning, which will successfully compete with fabrics made from synthetic fibers in apparel and household uses.

*3. Chemical processing*

(*a*) Investigations are being made of the four factors of prime significance for high quality wash-wear cotton: Good crease resistance and smooth drying properties, good retention of strength, minimum tendency toward odor development, and resistance to chlorine damage.

Specific approaches are the development of new and improved finishing agents and the determination of the optimum conditions for application. These studies include the investigation of the nature and role of the catalyst, optimum cross-linking of the cotton by the finishing agent, and the application of high-energy gamma irradiation techniques. The influence of temperature and moisture upon the physical properties of the fiber are being determined for use in predicting end-use performance.

Pretreatments which are known to swell or purify cotton and selected cotton cellulose ethers are being studied to produce better quality wash-wear cotton and to improve comfort of apparel by increasing moisture content of the fabric.

New finishing compounds are being studied to improve durability. Some of these, especially the epoxy and aziridinyl compounds, produce very durable finishes but they fall short in other respects. For example, the aziridinyl compounds turn yellow when chlorine bleached. Attempts are being made to eliminate this yellowing problem.

Preliminary work with formaldehyde in basic studies indicate that this inexpensive compound might be used if further research is successful, as a wash-wear finishing agent for cotton.

A study of processing variables to reduce chlorine retention and odor development is being made. A thorough cure and an afterwash reduce these faults but do not eliminate them.

(*b*) Elastic cotton yarn for use in stretch socks and other knit goods are being investigated through a combination of chemical and mechanical research.

(*c*) It has been found in preliminary work that cotton can be made thermoplastic, a valuable property possessed by most synthetic fibers. The basic principles for producing this property in cotton are under study.

(*d*) Inexpensive durable water and oil-repellent finishes, currently not available for cotton, are being developed.

(*e*) Many industrial fabrics which are used outdoors must be mildew- and rot-resistant and resistant to degradation by sunlight. Cotton is affected by all of these weather elements. Therefore, studies are conducted in each of these areas.

(*f*) Methods for producing excellent durable flame-resistant cotton fabrics for apparel use have been developed at the Southern Division. These flame retardant finishes break down on extended exposure to sunlight. Research is being conducted to find means of making these finishes resistant to sunlight for outdoor use.

*4. Machinery development*

The overall objective is the development of radically new concepts and equipment for producing higher quality, lower cost cotton textiles. Current work includes: (*a*) The development of methods and means for improving cleaning efficiency of the cotton textile card, (*b*) the development of means for rapidly determining the trash content of cotton lint, (*c*), the development of radically new means for spinning cotton yarn, (*d*) preliminary investigation to develop equipment for automatically opening and blending cotton from different bales in desired proportions.

III. COTTON UTILIZATION RESEARCH TO BE CONDUCTED UNDER BUDGET INCREASE

An increase of $503,000 to improve the quality of cotton textiles to strengthen the competitive position of cotton in textile markets.

*Need for increase.*—The success of synthetic fibers in recent years stems chiefly from quality improvements and effective promotion, rather than price. All of the noncellulosic fibers are higher in price than cotton. Consumers demand high quality textile products with specialized properties for specific uses. Since the situation with respect to competing fibers is not static, cotton must make considerable gains even to hold its present competitive position. To hold existing markets for cotton and to expand them, improvements that can be developed only through research must be made in such features as luster, warmth, resiliency, wash and wear, and resistance to wrinkling, soiling, rot, and burning.

*Plan of work.*—Specific research on cotton would include:

1. Development of wash-and-wear cotton fabrics that resist damage by chlorine bleaches. Promising preliminary results have been obtained with formaldehyde, the simplest and least expensive reagent found to give wash-and-wear properties. There is need to develop practical processing methods.

2. Development of cotton fabrics having both wet and dry wrinkle resistance and crease recovery. Methods have been developed for wet crease recovery and smooth drying, but not for good dry crease recovery which is necessary to maintain smooth appearance while a garment is being worn.

3. Improvement of cotton yarn and fabric constructions for wash-and-wear use. Standard cotton fabrics have been developed over the centuries on the basis of utility and appearance. Modification of construction by changes in yarn and fabric structure can be achieved through research which will give optimum wash-and-wear performance and utility when resin treated, without adversely changing fabric appearance.

4. Development of wrinkle-resistance and wash-and-wear properties in cotton without impairing strength. Known treatments that impart these properties impair fabric strength. This in turn limits markets. Loss in strength is due to a number of complex interrelated factors that require research.

5. Investigations of the molecular structure of native, degraded, chemically modified, and treated cottons by newly developed infrared absorption spectroscopy to develop means for evaluating quickly and accurately the efficiency of new wash-and-wear treatments.

6. Development of a practicable and durable soil-resistant treatment for cotton fabrics. Cotton is soiled with relative ease. Durable finishes are needed which are resistant to the combined effects of oily, wet, and dry soiling.

7. Intensified research aimed at establishing the relationship between fiber properties and spinning efficiency. Spinning limits are now specified on the basis of staple length rather than on the basis of all properties. By acquiring such information, a practical guide can be developed which will enable the cotton industry to spin American cotton more effectively.

8. Development of prototype equipment for automatically opening and blending cotton from different bales in desired proportions. New and better equipment for blending cotton is vital to quality in cotton textiles, especially in view

of current harvesting and ginning practices which lead to wide variations in fiber quality within and between bales.

9. Adaptation of the aerodynamic brush cleaner (U.S. Patent 2,848,754) to standard cotton textile pickers. The increasing severity of ginning and mill cleaning practices has brought about a need for mill equipment that will clean cotton gently and efficiently without damaging the fiber. The design of the aerodynamic brush would be modified for installation in a conventional picker and a suitable trash ejection type orifice would be developed.

## WOOL UTILIZATION RESEARCH

WESTERN UTILIZATION RESEARCH AND DEVELOPMENT DIVISION, ALBANY, CALIF.

### I. FUNDS AND PERSONNEL

| | Fiscal year 1960 | Increase, fiscal year 1961 |
|---|---|---|
| Funds | $821,000 | $100,700 |
| Division personnel (average annual positions): | | |
| Professional | 37 | 4 |
| Subprofessional and other | 31 | 4 |
| Total | 68 | 8 |

### II. WOOL AND MOHAIR UTILIZATION RESEARCH CONDUCTED WITH BASE FUNDS (FISCAL YEAR 1960)

The broad objective of research on wool and mohair is to develop new products, and products of improved serviceability. At present major emphasis is placed on the development of modifications of wool to give easy-care garments. To assist in attaining this objective, a new wool-processing laboratory was built, equipped and placed in operation in November 1959. As an integrated pilot plant consisting of the most advanced processing equipment, it provides versatile means for processing research and practical examination of new laboratory developments in the improvement of woolen fabrics. One of the engineering and technological studies underway in this new wool-processing laboratory is the evaluation on a pilot-plant scale of a process for making all-wool fabrics machine washable and shrink resistant. This extends bench-scale laboratory work which led to the discovery of the process involving chemical treatment of wool with epoxy resins. Industry has shown interest in this work. In order to hasten the development of this epoxy-resin treatment for durable shrink resistance, the resin requirements for fabrics of different constructions are being investigated under a contract approved in 1958.

*1. Fabric construction and fabric performance*

In the Department's new wool processing laboratory, work has been initiated on the relation of fabric construction to fabric performance in easy-care applications, and on fabric construction in relation to fulling properties of the fabrics. Wool fibers are being temporarily straightened prior to spinning, an operation that may eliminate or greatly modify certain conventional finishing processes for fabrics. The uniformity and strength of wool yarns are being studied in relation to fiber characteristics.

*2. Wool scouring*

Improved methods are being sought for the scouring of raw wool to remove grease and dirt, and for treating wool-scouring wastes to remove or recover components that are objectionable in streams and waterways. Promising results are being obtained with new synthetic nonionic detergents as scouring agents.

*3. Vegetable contaminants in wool*

A practical problem of special importance in processing domestic wool is that of contaminating vegetable matter. Such matter can persist through processing and appear in finished fabrics, lowering their quality and requiring removal by hand which adds to overall costs. A contract investigation has recently been initiated to develop an improved chemical method for removing this vegetable matter at an early stage of processing.

*4. Chemistry and physics of wool*

Research in chemistry and physics of wool and mohair is furnishing necessary background information on the composition, structure, and mechanical properties of domestic wools from sheep differing in breed, diet, and environmental background, and of wools which have been purposely modified chemically and physically. Work is underway to isolate and characterize each of the structural units which make up wool and mohair fibers. The compositions of the isolated proteins being determined, and the molecular sizes, shapes, and electric charges of the individual molecules are being measured. The arrangements of the molecules in fibers are being studied by X-ray and optical techniques. All of this information on structure and composition is being used to help explain observed differences in elasticity and strength among fibers, and to lay the basis for development of new and desired modifications of structure to impart specific properties.

One of the new developments to come from the laboratory studies of the physics of wool is an electronic method for detecting and analyzing differences in softness among wools based on small differences in the intensity and character of the sound produced when the samples are rubbed. This new technique is helping to guide development of modified wools without sacrificing the inherent softness. It is also being evaluated as a means of streamlining control of uniformity in the making of yarn.

New insight into the complex nature of the binding of moisture within the wool fiber has resulted from physical chemical studies of wool. This information contributes to our understanding of variations in processing behavior among wools, that may be related to subtle differences in water binding, and thus lays a basis for development of more economical and more adequately controlled processing of wools.

The research on physics of wool is also providing understanding of the mechanism by which light causes yellowing, helping to lay the basis for development of effective means of inhibiting such degradation.

A new electron microscope has recently been installed. It will enable scientists to examine directly the supermolecular architecture of wool and to observe, for example, where soil particles become attached, or where modifying resins are deposited. Such information can guide the development of optimum treatments to give maximum protection against shrinkage with minimum change in other mechanical properties of wool.

III. WOOL UTILIZATION RESEARCH TO BE CONDUCTED UNDER BUDGET INCREASE

Increase of $100,700 for research to develop new type yarns from coarse wool.

*Need for increase.*—Domestic wool production is principally in the coarser grades. Since these grades are unsatisfactory for the lightweight, soft fabrics demanded by consumers, foreign wools which are finer and lighter in color are imported for fine fabrics. Although coarse domestic wools can be used satisfactorily for carpet manufacture, they are still at an economic disadvantage because coarse carpet wools are duty free and can be obtained more cheaply through imports. Moreover, for economic reasons emphasis in American sheep production is on meat rather than on wool. Improvements in breeds have tended toward large animals that produce more meat and also more medium to coarse grades of wool.

To expand uses for domestic wools in quality fabrics, research is needed to find ways of spinning coarse or medium grades into finer yarns. This is a difficult technological problem and for this reason it has not been widely investigated by the processing industry.

*Plan of work.*—Methods will be developed for making high quality yarns by uniform blending of fine and coarse wools, and of coarse wools with chemically modified wools. When methods for making suitable yarns have been developed, new types of fabrics will be made and evaluated. The studies will include research to develop new finishing operations to provide required fabric softness.

Mr. WHITTEN. You may proceed.

OILSEEDS RESEARCH

Dr. IRVING. The third increase that we are requesting is one in the category of oilseeds.

Mr. WHITTEN. Let me get back to that, and back to this cotton situation. As I say, I went through the Southern Laboratory and was very much impressed with the personnel we have there, with the equipment, and with the results that were demonstrated to me. My attention has been called, and the committee's was last year, that cotton, particularly in view of the amount that goes under Government loan, has had a real problem from synthetic competition. In view of the contention that certain ginning practices and other practices are deteriorating, or at least weakening the tensile fiber, though other folks differ with that contention, the Congress has gone along with the Department first, in ginning research last year, and then in the work at the Southern Laboratory. The contentions of many people as to what is needed, as they explained it, is research from the field all the way through ginning, through handling and baling, and right up to the mill, to see what the tensile strength is at the various stages, to follow cotton all the way through.

Now, if the contention of those in the National Cotton Council, which I have briefly described, have merit, where you are doing some work at Clemson, I am trying to get to where they put new people at the Southern Laboratory on the long-range program from the field all the way through to the finished product.

Have you compared the needs to speed up the day when we will have the equipment to measure tensile strength, or where we can class cotton by its real value in use? Have you compared that need, or the possibility of speedup there, as against using these additional funds at the Southern Laboratory for what, on the face of it, looks like an intensification of work that is now going on?

Dr. IRVING. Yes; I think that the work of the Agricultural Marketing Service at Clemson and the objectives that they have are most important to the cotton industry. It will, as you say, permit the grading of cotton, recognizing more of the intrinsic properties of cotton fiber than are now recognized. It will permit a better use than we now have of the cotton we now produce. But we assume—and this is important, most important, I think—that if that is developed to the ultimate, we will still have only the conventional markets for cotton, or the cotton uses that now exist.

Mr. WHITTEN. We are discussing an enlargement of activities of yours; we are not discussing abolishing the laboratories. We are just discussing increasing funds to expand what is largely going on there at a time when there is urgent need, so I am told, to put extra effort to make this continuous, to have information from the beginning to the end. I am asking you to compare the relative merits of speeding up this, getting information from the beginning to the end, as against intensifying the work that you are doing there.

Dr. IRVING. I think, as I say, that the Clemson work is most important, and once we have completed it the processor will know how to make best use of cotton presented to him. But unless we have the new uses that we are developing at the southern laboratory, he will then have only the markets for such uses as now exist.

Mr. WHITTEN. We are not closing up the laboratory. We are talking about giving some 30-odd additional people in the same laboratory, with the same equipment, as against putting those people at stages

that are still not implemented, at Clemson, and in between; and I am just asking you to compare the relative values, to determine if the committee should go along with it.

Dr. IRVING. It is risky to try to come to figures, but let's take the 800,000 bales of cotton we mentioned a while ago, that have been kept in the market through the research of the southern laboratory. That represents 20 years of research. We might say, then, that for each year of research at our southern laboratory, we keep 40,000 bales of cotton in the market, or provide an annual market for 40,000 additional bales. That might be a way of evaluating it. Additional research would increase that figure.

Mr. WHITTEN. All of that is what we have been doing and are doing now.

Dr. IRVING. Now, we are satisfied——

Mr. WHITTEN. We are discussing some extra research here. You could show that somewhere between the time that cotton was picked and the time it ended up in cloth, that somebody is doing some damage to the tensile strength, and if you found out where that damage is being done, and if you corrected it, your cloth would be a lot better than it is now, and a whole lot stronger than it is now. Then, can you put in terms of bales how many more bales you might sell there?

Dr. IRVING. I cannot. You might even sell less, because it might last longer.

Mr. WHITTEN. You mean we had better watch that?

Dr. IRVING. It is a possibility.

(Discussion off the record.)

Mr. WHITTEN. We might go back on the record. I believe you had started to another subject.

INCREASE FOR OILSEED UTILIZATION RESEARCH

Dr. IRVING. The increase under the heading, "Oilseeds," would be $100,700 for intensifying our research on castor beans. This work would be done at our western laboratory at Albany, Calif., and would involve a twofold approach: First, to develop additional new uses for castor oil; second, to identify and find means for eliminating the allergenic properties of castor meal.

I might say that the castor crop is an established crop right now. We produced about 36 million pounds of castor beans last year.

Mr. WHITTEN. What is the total value of that as beans?

Dr. IRVING. They would run about 6 to 8 cents a pound.

Mr. WHITTEN. Roughly figure that out for me, if you would.

Dr. IRVING. That is about $2.5 million, roughly.

Mr. WHITTEN. How are we doing so far as meeting the domestic needs?

Dr. IRVING. We use 125 million pounds of castor oil a year. In other words, with beans yielding about 50 percent oil, we are using around six or seven times as much oil as we are able to produce.

Mr. WHITTEN. So there is a domestic market?

Dr. IRVING. There is a domestic demand for it, and we feel that once that domestic demand has been filled, there are still bright opportunities for developing additional uses for castor oil. This would provide, then, a farm crop that can be profitably produced in vastly in-

creased acreages and serve as a replacement crop. This is the goal that we seek.

Mr. WHITTEN. Do you have industrial uses for castor oil? Are you constantly increasing the use in industry of the oil?

Dr. IRVING. Yes, we are. In one use alone, the foamed plastics, rigid and elastic foams, 1 million pounds of castor oil were used last year, and that use is increasing. Our contributions to it have been significant, because we have shown how the plastics can be made more resistant to shrinkage and more resistant to water. This is a very rapidly growing use for castor oil. We seek others.

Mr. WHITTEN. You said castor beans were grown in California and Texas?

Dr. IRVING. That's correct.

Mr. WHITTEN. How much of the country is it adapted to? What part of the United States? Or do you think it could be adapted?

Dr. IRVING. I prefer Dr. Byerly to answer that question.

Mr. WHITTEN. I am trying to see what the potential is.

Dr. BYERLY. There is a wide potential, depending largely on yield, The yield is better under irrigation than it is on dryland farming. There are some remaining problems. Those would have to be solved, but there is wide potential in acreage for the crop.

Mr. WHITTEN. In that area now, I don't know that I asked about castor beans; but I would want information there, as to how much money you have now and how many people you have, and what this increase would be. You can put that in the record.

(The information requested follows:)

## CASTOR BEAN UTILIZATION RESEARCH

WESTERN UTILIZATION RESEARCH AND DEVELOPMENT DIVISION, ALBANY, CALIF.

I. FUNDS AND PERSONNEL

| | Fiscal year 1960 | Increase, fiscal year 1961 |
|---|---|---|
| Funds | $149,000 | $100,700 |
| Division personnel (average annual positions): | | |
| Professional | 8 | 6 |
| Subprofessional and others | 5 | 2 |
| Total | 13 | 8 |

II. CASTOR BEAN UTILIZATION RESEARCH CONDUCTED WITH BASE FUNDS (FISCAL YEAR 1960)

*1. Foamed plastics*

Present research on castor oil is designed to take advantage of the fact that this oil is unique among commercial vegetable oils in having a significant proportion of the chemical group known as hydroxyl. This group in castor oil or its derivatives can be reacted with synthetic organic chemicals known as diisocyanates to produce foamed polyurethane plastics. It has been found that these foams can be made rigid or flexible depending upon the formulations used and the proportion of diisocyanates. These foams weigh only about 2 pounds per cubic foot, or about one-thirtieth as much as water. The flexible foams may be used in cushioning materials, for upholstery, crash pads, etc.; the rigid foams may be used in structural materials to supply strength or as insulation for heat and sound. A useful laborsaving feature of such materials is that they can be foamed in place; a freshly prepared mixture can be poured into odd-shaped voids such as an airplane wing, a boat hull, or a refrigerator wall and the mixture will foam up to fill the entire void. Products prepared in this way are being

evaluated. The effects of various changes in formulation and processing on such important properties as foam density, strength, heat conductance, and water resistance, are being investigated

*2. Chemical derivatives*

Research is also underway on the preparation of various chemical derivatives of castor oil, particularly nitrogen-containing derivatives, because of the potential utility of such products. One of several which has already been prepared yielded a very good product when tested as a component of castor-based polyurethane foams. Others now being prepared will be tested for this application and for possible utility in other areas such as surface-active agents (detergents).

*3. Solid plastics*

The chemical reaction employed to produce polyurethane can be carried out under conditions which do not produce foaming and then the products obtained are solid plastics or rubbers. However, with the limited funds available, our current research on castor oil is restricted to the development of foams. Additional funds for 1961 are being requested to permit undertaking this promising work on the development of nonfoamed products for such uses as solid plastics and rocket fuels.

*4. Allergens of castor meal*

Remarkable progress has recently been made in the current research program on the allergens of castor bean meal, which are so violently active as to pose a major obstacle to profitable expansion of castor bean growing in the United States. An allergenic material isolated from the meal has been fractionated into a number of different protein components. We have found these same components in oil-free castor bean flour. Guinea pigs sensitized by injection of the allergenic material showed reactions to each of the isolated components, and also reacted to pollen and extracts of the female blossoms of the castor plant. These results suggest that humans may become allergic to one or more components of castor bean meal through exposure to dust containing fragments of female blossoms or pollen as well as meal. The severity of the allergen problem as a hindrance to extended utilization of the meal is underlined by the fact that more than half of the employees of a castor processing plant developed adverse reactions. Blood samples obtained from those affected are providing useful in further study of the allergens.

III. CASTOR BEAN UTILIZATION RESEARCH TO BE CONDUCTED UNDER BUDGET INCREASE

Increase of $100,700 under the project "Oilseeds" to expand research on castor oil to develop materials for solid fuels, and flexible or molded products; and to improve the utilization of castor meal.

*Need for increase.*—Castor beans would be a good replacement crop if extended uses could be developed for castor products. Castor oil, the primary product from castor beans, is used almost exclusively for industrial purposes. The meal or pomace is now used only as a fertilizer. Castor oil contains about 90 percent ricinoleic acid, the only hydroxy-fatty acid present in sufficient quantity in any naturally occurring oil to be of economic importance. Its hydroxyl group makes its most responsive to chemical modification. A particularly attractive area is utilization of castor oil in urethane polymers to produce rigid or elastic foamed plastics. Production of polyurethanes, now largely derived from petrochemicals, rose from about 1 million pounds in 1955 to an estimated 69 million in 1959. By virtue of its unique nature and its price, castor oil presents unusual opportunities for utilization in the production of polyurethanes of all types.

Research presently underway on utilization of castor oil in the production of lightweight polyurethane foams should be expanded to develop solid urethane polymers from castor oil for use as solid plastics and rocket fuels. Extensive research is needed to develop the techniques for producing these materials and for evaluating their utility for specific purposes.

Castor meal comprises about half the weight of the beans. This meal is rich in protein but contains potent allergens, toxic proteins and the alkaloid ricinine which limit the use of the meal. Research now underway on the isolation and identification of the allergenic components should be expanded and broadened to include research on methods for detoxifying the meal so as to make it suitable for use as a feed, and to devise means of separating individual components which might have industrial utility.

*Plan of work.*—Solid or rubbery type polymers for use in rocket fuels and solid plastics for structural elements will be prepared from castor oil or suitable derivatives of castor oil by reaction with various chemicals, particularly diisocyanates. The castor oil used may include oil which has been hardened, for example, by hydrogenation, or otherwise modified chemically. The effect of reinforcing agents such as carbon black and of plasticizers will also be studied. The solid or rubbery polymers will be tested for a full range of commercially important properties. In this way evaluation may be made of their potential utility for application in such large volume products as footwear, gaskets, diaphragms, belts, gears, bushings, compositions for electrical components, and caulking compounds.

Castor meal will be fractionated into various protein parts. The fractions obtained will be subjected to tests with small experimental animals to determine their biological activity. The information thus obtained will be used as a guide to develop means of detoxifying the meal by treatment with suitable reagents.

Mr. WHITTEN. You may proceed.

INCREASE FOR UTILIZATION RESEARCH ON ANIMAL FATS

Dr. IRVING. The last increase that we are requesting is under the head of poultry, dairy, and animal products, and would be $301,800 for intensification of our chemical studies to develop additional uses for surplus animal fats.

Mr. WHITTEN. Now, if you would give us the same information on this increase: How many people do you have? What work are you carrying on? How many new people would you have as a result of this?

Dr. IRVING. We will put the exact figures in the record. For purposes of the moment, we have about $900,000 in this field which represents about 45 professional personnel on animal-fat research.

(The information requested follows:)

ANIMAL FATS UTILIZATION RESEARCH

EASTERN UTILIZATION RESEARCH AND DEVELOPMENT DIVISION, PHILADELPHIA, PA.

I. FUNDS AND PERSONNEL

| | Fiscal year 1960 | Increase, fiscal year 1961 |
|---|---|---|
| Funds | $871,300 | $301,800 |
| Division personnel (average annual positions): | | |
| Professional | 52 | 18 |
| Subprofessional and others | 28 | 3 |
| Total | 80 | 21 |

II. ANIMAL FATS UTILIZATION RESEARCH CONDUCTED WITH BASE FUNDS (FISCAL YEAR 1960)

1. Preparation of metallic soaps, such as barium and cadmium, from wool grease acids and evaluation of their properties as stabilizers for polyvinyl (plastic) films.

2. Synthesis of new types of nonionic detergents from animal fat derived compounds and evaluation of their properties singly and in combinations looking to commercial utility in the rapidly growing detergent market.

3. Synthesis of tallow-based detergents and evaluation of their lime soap dispersing properties in relation to chemical structure as a basis for future applied studies on soap-detergent combinations and blends as cleansing agents.

4. Investigation of the interaction of animal fat compounds with amino acids and proteins looking to development of information which will clarify the

mechanism of fat rancidification such as occurs in dried whole milk and other fatty foods and provide a sound and safe basis for preventing such deterioration.

5. Basic studies on the synthesis and properties of pure triglycerides (fats or oils) looking to development of information which will serve as a basis for expanded industrial and food uses of animal fats.

6. Development of better methods for separating fat components and improved methods of analysis which will permit a more accurate characterization of fatty substances in industrial applications as well as in foods and feeds.

7. Under contract with Villanova University investigations are being conducted on the chemical and physical structural characteristics of a highly purified triglyceride (fat) by means of X-ray diffraction.

8. Under contract with the University of Illinois basic studies are being conducted on the copolymerization of animal fat derived compounds with commercially available monomers; the physical properties of the polymers produced in these reactions are being studied in relation to chemical structure.

9. Synthesis of new types of animal fat derivatives which may be copolymerized with other monomers (plastic precusors) looking to the development of plastics with unique properties. These include copolymers of octadecyl acrylate, polymers based on epoxides, and on fat derived amides. Physical properties of the plastic products are being studied in relation to commercial utility.

10. Development of new methods for the direct preparation of dicarboxylic acids from unsaturated fatty acids. This basic work is expected to lay the groundwork for future studies looking to the use of animal fat-derived compounds in a variety of industrial products including plastics, ploymer modifiers and lubricants.

11. Development of methods for the synthesis of new fat compounds of the organic-inorganic type containing sulfur, nitrogen, or phopsphorus and evaluation of their physical properties. This field of chemistry is relatively unexplored but work so far indicates that certain phosphorus-containing animal fat derivatives have unique properties as plastic modifiers. They may well have utility in other large markets such as lubricants.

III. ANIMAL FATS UTILIZATION RESEARCH TO BE CONDUCTED WITH BUDGET INCREASE

Increase of $301,800 under the project "Poultry, dairy, and animal products" for research to expand or find new uses for animals fats in the field of lubricants, plastics, and plasticizers and soap-detergent combinations.

*Need for increase.*—During the past 5 years the annual production of inedible tallow and grease has averaged almost 3 billion pounds, which is more than 1¼ billion pounds in excess of domestic needs. Formerly practically all inedible animal fats went into soap production. This outlet has declined from a high of about 1½ billion pounds per year at the end of the last war to about 700 million pounds in 1958.

Research has already provided outlets for substantial amounts of these surplus fats and derivatives in animal feeds, tin-plate manufacture, and plastics. Use in animal feeds now approaches 500 million pounds per year. Use in plasticizers promises to attain 100 million pounds annually. Surveys of other possible uses indicate that new research in the field of detergents, lubricants, plastics, and plasticizers would produce new outlets. For example, soap has certain advantages over present detergents. It is better in soft water, can be produced in bar form, and is more effective in keeping soil suspended in water. Commercial laundries are particularly interested in combinations of soaps and detergents which would utilize the advantages of both. Research is needed to develop such products.

Exacting fluidity requirements for lubricants for jet engines and other new types of machinery indicate that animal fats or derivatives may be a good source for lubricant additives or lubricant bases. Mineral oils are now the chief source but there are indications that the inherent nature of animal fats may provide more stable products.

There is very good potential for large volume uses of animal fats in these substantial and rapidly growing fields if research can be expanded to permit exploration of additional promising leads.

*Plan of work.*—It is proposed to expand research especially along the following lines:

1. Development from animal fats of new chemical derivatives that possess the unique properties required by industry for softening plastics intended for specific uses.

2. Development from animal fats of lubricant additives and lubricant bases to fill the need for lubricants having the special properties required for modern machinery operation.

3. Investigation of various combinations, blends, and mixes of soap and detergents derived from animal fats to develop more effective economical cleansing agents.

Mr. WHITTEN. It strikes me that with the Government paying the rates it is, you could do a whole lot with $900,000, to develop uses of animal fats in the field of lubricants, plastics, and plasticizers, and soap-detergent combinations. What is it that $900,000 worth of people that you have now ought to be doing and cannot do because there are too few, and these additional people would do?

Dr. IRVING. The 45 professional staff and supporting staff we have now are working on projects directed at developing additional uses for animal fats, just as they developed the epoxydized oils plasticizers that we mentioned earlier, and more recently a compound known as vinyl stearate, which is being manufactured in the amount of about 2 million pounds a year, again for use as a plastic ingredient.

Mr. WHITTEN. That wonderful record makes me wonder why you want to embarrass them by indicating they are not doing the job well enough, and you want some new folks.

Dr. IRVING. Our philosophy is that if good chemists can be as effective as they have been at the eastern laboratory, in developing uses for millions of pounds of animal fats, that equally competent chemists under that same direction could increase the amount of usage of animal fats that we are able to——

Mr. WHITTEN. The more chemists the better?

This makes me wonder about Pasteur and some of these folks we read about in history, where one man did all of these things.

Dr. IRVING. I think that in this type of research, the utilization research that we are talking about——

Mr. WHITTEN. Field labor, I can understand: 100 can do more than 50. But I can't understand that in this field where you have 45——

Dr. IRVING. If you run out of ideas, you are right. If you have more ideas than you have men to explore these ideas, you are wrong. And with your surplus of ideas——

Mr. WHITTEN. Could you list all those ideas? I would like to read them, myself.

Dr. IRVING. We would be glad to supply them.

Mr. WHITTEN. That you are not able to reach.

Dr. IRVING. Yes.

Mr. WHITTEN. I think it is pertinent here.

(The information referred to follows:)

The present research program on animal fats is in two general areas: (1) Studies of industrial applications for fats, fatty acids, and their derivatives, with special emphasis on their use as plastics, detergents, lubricants, and lubricant additives; and (2) basic and exploratory studies to characterize these animal fats, all of their components, and to chemically modify them to produce products with properties with potential in a wide variety of industrial applications.

The requested increase would allow for simultaneously exploring several new approaches to the development of detergents, plastic, and lubricant products in addition to those now possible, and to develop much needed fundamental information on the properties of animal fats and their fatty acid components essential to the development of products, not only in the aforementioned fields but also in additional applied fields where there exists a need for industrial products

and where animal fat derivatives have a good potential for meeting those requirements.

A list of fields in which both industry representatives and Department research workers believe there is high potential for expanded uses of animal fats follows. Each requires several modes of attack, and the first item is expanded in some detail as an example.

1. Development from animal fats of new types of polymerizable fatty derivatives useful as components of plastics, elastomers, and other polymers.

(*a*) Synthesis of fatty derivatives containing 3- and 4-membered homocyclic and heterocyclic ring structures starting with monomeric derivatives which include oxirane, oxetane, azirane, azetane, thietane, cyclopropane, and cyclobutane rings.

(*b*) Fluorine and other halogen derivatives.

(*c*) Introduction of metals and metalloids such as silicon, germanium, tin, boron, and mercury into fatty derivatives.

(*d*) New phosphorous-, sulfur-, and nitrogen-containing fatty derivatives, including di- and tri-alkyl phosphono compounds, thiiranes, thiols, thioesters, cyclic amines, and polymerizable amides.

(*e*) Study of the polymerizability of each of these compounds and copolymerization with other monomers to obtain the requisite information to permit their widest use.

(*f*) In each of the wide variety of fatty derivatives methods of preparation, determination of physical and chemical properties, processes for large-scale production, and applied uses as plastics, plasticizers, and elastomers will require detailed investigation.

2. Development of fat-based additives to improve the handling and finished properties of concrete.

3. Study of fatty acid ketenes and isocyanates as waterproofing agents for textiles, paper, wood, plaster, and concrete.

4. Development of additives for asphalt in roadbuilding to minimize brittleness in cold weather.

5. Development of flotation agents for concentrating low-quality minerals and ores.

6. Combinations of fatty acids and cotton to create new industrial products from two agricultural sources.

7. Fatty acid derivatives from animal fats suitable as replacements for fatty acid derivatives from imported vegetable oils such as coconut.

8. Combination of fatty acids with sugar (sucrose).

9. Combination of fatty acids with starches.

10. Development of low-cost methods for producing vinyl esters and ethers (reaction of acetylene with fatty acids and derivatives) for possible use in the coatings field.

11. Electrochemical reactions of fatty acids.

12. Development of fat-based chemicals with antibacterial and antienzymatic activity.

13. Modification of the alkyl chains of fats with respect to length, unsaturation, alkylation, cleavage, isomerization, and polymerization has great potential in the field of new chemicals.

14. Fundamental studies of surface activity properties as related to absorption, adhesion, and film structure.

The above are selected examples of research ideas, if imaginatively and vigorously prosecuted, will lead to extended industrial uses of animal fats and their products.

Mr. WHITTEN. All right, proceed.

Dr. IRVING. That completes our requests for increase, Mr. Chairman.

Mr. WHITTEN. Are there questions along these lines that we have discussed here, from members of the subcommittee?

## CEREAL UTILIZATION RESEARCH

Mr. MICHEL. I would like to explore just a little bit further, if I might, that $700,000 that will be divided between the Peoria and the Albany, Calif., research laboratories. I must say that if the chairman's concern is well-founded, that I, too, probably have that same

concern, since the Peoria Laboratory was originally founded or established to work in the area of cereal grains.

As I understand it, this utilization research will be in that area.

May I ask this question? If nothing else, I have a selfish motive, since Peoria is my hometown. Could the entire $700,000 be utilized just as efficiently at the one laboratory in Peoria as you say it might be done by dividing: $400,000 to Peoria and $300,000 to Albany?

Dr. IRVING. I think the answer to your question is, yes, it could be done efficiently at Peoria. I would have to think a moment to see whether we have the facilities, whether they are large enough to accommodate that size program at this time, but I am confident they are.

Mr. MICHEL. This was going to be my next question, as to whether or not the physical plant, as such, is capable of doing the entire job?

Dr. IRVING. The answer to that, is yes. Now, we have explored the very question you ask, Mr. Michel. There are great advantages in concentrating research in a given field, in one place. The economies sometimes are great, depending upon the type of equipment that you need, and close contact of people in like work is of some advantage.

There are also advantages, however, in having a fresh viewpoint in areas of research which are exploratory. That is good if you have folks of equivalent competence, which we believe we have or can obtain, in the two locations. The independent, competent approach to developing new uses, we believe in this case, outweighs the advantages of keeping this work together, and since we have established programs in cereals in both places, we don't believe there will be an uneconomical use of these funds if they are divided as we propose.

Mr. MICHEL. If the committee agreed to go along with your position that it would be better to move from two separate points, quickly my mind turns to the military's development of missiles by the Army, Navy, and Air Force, and their refusal between the services to cooperate in the exchange of information.

Working from the two separate points, would they be so independent as to go their independent, separate ways, without a periodic, regular interchange or exchange of information, so that there isn't this useless waste of one team fighting like mad to get a breakthrough without using the information which the other team has had a month or 2 months before?

Dr. IRVING. We can say very definitely that there are no intramural jealousies or antagonisms within utilization research and development; there is complete interchange of information on this, and all other subjects. The personnel are in frequent contact. We have many of them together periodically, either in Washington or in the field. We have many means, written means, by which information is exchanged.

I think there is a big difference between the example that you cite, where the objective is to develop a single item, and our objective, which is to develop as many possible different uses for our raw materials as we can. Consequently, there is little room for duplication. There is much room for supplementation, one organization by the other.

Mr. MICHEL. One further question, just to clarify in my own mind the distinction between what you envision for the two teams in this same field. Would the Peoria group particularly interest itself in

utilization of the cereal grains for industrial use, whereas the group in Albany would be working more toward human consumption?

Dr. IRVING. With the $300,000 here in question, the western laboratory would also be devoting itself to industrial uses. In other words, this would supplement the northern laboratory program.

Mr. MICHEL. So, actually, they would really be working both toward the same end?

Dr. IRVING. This is developing new uses for wheat; yes.

Mr. MICHEL. Rather than having $400,000 at the one laboratory in Peoria and $300,000 at the other, what if the committee saw fit to cut the total figure to maybe $500,000 and put the entire amount at Peoria, could we get the same end result?

Dr. IRVING. No; I would say that we would get a greater return for the $700,000 than we would for $500,000.

Mr. MICHEL. So that we couldn't make it up in simply concentrating it at the one site?

Dr. IRVING. I don't believe so.

Mr. MICHEL. That's all, Mr. Chairman.

### TRANSMISSIBLE GASTROENTERITIS OF SWINE

Mr. WHITTEN. Last year the committee asked, or called on you to make a study of the disease of small pigs called TGE, transmissible gastroenteritis. Have you any information you can give us on your findings?

Dr. SHAW. I had mentioned that the Congress had increased our funds by $30,000, and we actually allocated $50,000 to the work, by taking $20,000 from other things; so as to give it even further strength.

The work is underway, but it has been underway for such a short time that I cannot report any progress.

Mr. WHITTEN. You expect to continue that work?

Mr. SHAW. Yes.

Mr. WHITTEN. Funds are in this budget to carry on the work?

Dr. SHAW. The $50,000 allocated will continue the work.

### HOME ECONOMICS RESEARCH

Mr. WHITTEN. I note that you are not requesting an increase for home economics research; however, we would be glad to have a statement from Dr. Stiebeling about your program of work.

Dr. STIEBELING. Mr. Chairman, the homes of this country are the main customers for the products of American agriculture.

Research—home economics research—is carried on in the Department to develop information that helps people understand and appreciate the values of these products for food, clothing, and other household purposes and thus enables them to select the products which will best satisfy their needs and wants. This research also aids producers to put on the market things that are better adapted to consumer demand.

Eight of the ten USDA publications most in demand in 1959 were concerned with improved household use of food and fabric. These publications were prepared by the research divisions of the Institute of Home Economics, as were some 240 pages, or more than one-third,

of the 1959 Yearbook of Agriculture, Food. Almost 24,000 copies of this yearbook were sold by the Government Printing Office during the last quarter of 1959. This, I am told, is a record demand for any yearbook over a comparable period.

In variety, quality, and quantity, our Nation's present food supply surpasses our own record in most respects, and beggars the imagination of people in most parts of the world. Indeed, it is in relation to this very abundance of food that many present-day nutrition questions arise. Among the prominent and continuing questions are those relating to fat. In recent years many consumers have been hesitant to use fats freely. This has been the case (1) because fats provide more than twice as many calories per unit weight as does protein or carbohydrate, and many persons have the problem of weight control; and (2) because fats have been implicated in the development of atherosclerosis and other chronic diseases that are prevalent among middle-aged and older people. The problem of fat in nutrition is one about which we have had concern for some years, as this committee knows.

We know that fats serve a number of necessary nutritional functions. But we also know that people differ in their ability to metabolize high-fat diets in a normal fashion. Some authorities believe that we should eat less fat. Others emphasize paying more attention to the kind of fat—getting a larger share from those food sources that are rich in linoleic acid. We have contract research in progress on the response of human subjects to moderately high-fat diets that vary in the amounts of linoleic acid they provide.

A much publicized and perhaps the most exciting single scientific advance made in our laboratories during the last year has been the convergence of results from three lines of investigations that emphasize a relationship between fat metabolism and the nature of the dietary carbohydrate. In one set of studies, animals on moderately high protein diets with varying amounts and kinds of dietary fat were found to have more body protein and less body fat when cornstarch rather than ordinary sugar was the carbohydrate included in the diet. In a second line of work and with other basic diets, replacing sugar with starch as the source of carbohydrate lowered abnormally high levels of liver fat and liver cholesterol and reduced kidney damage in laboratory animals. In a third series of investigations, it was shown that a one-celled organism, a protozoan, which requires many of the same nutrients as do mamalian cells, grew and thrived better when the nutrient media contained starch or glycogen rather than the simple sugars, dextrose or fructose.

We do not know whether the kind of carbohydrate in diets has nutritional significance to us Americans whose customary diets are relatively high in protein and fat. But this practical point should be kept in mind: We once ate much more bread and potatoes than we do today. In 1910 starch provided 68 percent of the calories from carbohydrate as compared to 46 percent today. We have negotiated a contract to compare the effect on the fat metabolism of healthy human volunteers, young men, when their dietary carbohydrate is chiefly sugar and when it is chiefly starch.

Not all of the pieces of the jigsaw puzzle on the relation of fat to health are at hand, despite research advances on many fronts in lab-

oratories around the world. We must continue work to help extend fundamental knowledge on many unresolved points.

During the year the staff has also made some significant contributions to our knowledge of the fat content of foods. Two new publications have come from the press on the kinds and amounts of different fatty acids found in food fats. The basic scientific publication is a compilation of analytical data for some 560 products. The second publication is for more general distribution and gives what we consider to be representative values for the amounts of nutritionally significant fatty acids in our commonly used food fats.

A third publication, now in press, offers new tables on nutritive values of food, that give the amounts of 15 important nutrients found in common portions of our everyday foods; included are the amounts of 3 selected types of fatty acids as well as total fat. This publication is designed for the general public but will be widely used by dietitians and clinicians. The National Institutes of Health, for example, have requested, and have been given, prepublication copies of these tables to use in their studies of the diets of individuals in relation to the epidemiology of selected diseases.

We are continuing laboratory analyses of foods for many nutrients for which present-day information is inadequate, including the broad spectrum of some 18 to 20 fatty acids. The resulting new data will be used in revising tables of food composition and nutritive value. Tables showing nutritive values of food are used by many groups—for planning and appraising diets; for setting standards for food procurement; in the development of specifications for market quality of commodities such as lamb, pork, convenience foods, and ready-to-use mixtures. All of this work is part of our program to learn how various foods may be used most effectively. It is of increasing concern both to agriculture and to the consuming public.

Next to studies relating to fat in foods and diets, we are giving highest priority in nutrition to research concerned with protein. We have investigations underway into factors affecting protein requirements and relating to the biological variation in human response to diets.

Our research activities dealing with various aspects of food and human nutrition absorb about 75 percent of our funds. Work on problems relating to clothing, housing, and household economics absorb about 25 percent.

In textiles, we undertake basic and applied research having implications for consumer selection, use, and care of fabrics, garments, and home furnishings. This includes, among other things, study of causes of and ways to minimize shrinkage of knit fabrics; causes of and prevention of yellowing in cotton fabrics during household laundering; and the effect of the active agents in modern detergents, bleaches, disinfectants, and other products used in fabric care on the cleanliness, finished appearance, and serviceability of fabrics laundered by different methods.

A new edition of the USDA stain removal bulletin has been issued so that it now includes information on removing new types of stains from staple fabrics and all types of stains from fabrics with new types of finishes. Over the years, this bulletin on removing stains from fabrics has ranked among the top 10 of USDA's publications. From

the first edition in 1926 until the present, USDA has received 6,240,000 requests for this bulletin.

In housing we coordinate our research with that of workers of agricultural experiment stations in the several regions, pressing forward to accumulate data needed for more rational and economical farmhouse design. It is essential that farm housing incorporate convenient, functional, and safe arrangements for carrying out customary work and recreational activities. In a year, home accidents have caused 41 percent of the injuries that made it necessary for more than 40 million persons to seek medical care or to restrict their activity for at least a day, according to a recent U.S. Public Health Service survey.

Three kitchen designs have now been developed that are based on results of research on the amount and arrangement of space needed for efficient storage and work areas. The first of these, a combination kitchen-workroom, has been on display at the Agricultural Research Center for the last 3 years, and has been visited by over 13,000 persons. Over 130,000 copies of the publication describing it have been distributed on request. The second, a combination kitchen-family room was placed on display during the summer of 1959. The third, still being tested, is a smaller kitchen that provides facilities only for the preparation and service of food. These kitchens illustrate efficient arrangements of major equipment and different designs for storage facilities from which families may now choose the one best suited to the design of the house they are planning, or if remodeling the features that best meet their needs.

To afford an improved basis for household management we are undertaking researches to provide the technical data needed for decision-making by families as to use of time, money, credit, and other resources for attaining family goals. Much of our recent work has been geared to problems raised by leaders in Rural Development programs.

In all fields of research we take the results to scientists, teachers, other leaders and to the general public through publications of many kinds. In 1959, our research findings were released through 27 printed bulletins, 10 processed publications, and 78 articles or abstracts. In addition, the State Extension Services were sent four issues of Family Economics Review, and State Nutrition Committees, four issues of the periodical Nutrition Committee news.

The 1961 budget for home economics research carries a program increase of $25,000 for participation in ARS research relating to pesticides. The need for this important field of work and the general plan of investigation have already been presented by Dr. Byerly. Home economics has been asked to contribute to this entire effort by evaluating the effect of agricultural chemicals on flavor and other qualities of foods that are of concern to the consumer. Such evaluations are undertaken only after the pesticide has been shown to be effective for its purpose and to be safe in use.

PROGRESS OF PROGRAMS

Pages 72–75 of the Explanatory Notes summarize the activities in home economics research and give some selected examples of recent progress reflected in our publications. You may wish to insert these in the record at this point.

(The information referred to follows:)

## Home Economics Research

### CURRENT ACTIVITIES

Investigations are conducted on human nutritional requirements, composition and nutritive value of foods, and problems relating to the household preparation and preservation of foods. Studies are made of problems in household utilization of textiles, clothing, and equipment, and of family requirements for housing and related facilities. Investigations are made also of food-consumption practices and the nutritive value and economy of customary diets, patterns of rural family expenditures and production for household use, and economic problems of household management.

### SELECTED EXAMPLES OF RECENT PROGRESS

1. *Fatty acid values of food published.*—Two timely publications on fatty acids in foods have been issued to help advance knowledge of human nutrition. One, "Fatty Acids in Animal and Plant Products—Compilation of Analytical Data and Bibliography" provides technical data on some 20 fatty acids and is for use by research leaders in foods and nutrition. The other, a simplified practical table on "Fatty Acids in Food Fats," gives values for the content of the most abundant fatty acids in common fats and oils, and is for use by nutritionists and others concerned with planning and appraising diets and food supplies. There are many gaps in our information about fats, and these publications should stimulate research to obtain needed new data.

2. *Serum cholesterol in animals affected by type of dietary carbohydrates.*—Three lines of investigations have emphasized the advantages of starch over sugar in food utilization and energy metabolism. In one series, rats on high protein diets had more body protein and less body fat when cornstarch rather than sucrose was the dietary carbohydrate. At 400 days of age serum cholesterol was about twice as high on the diet containing corn oil and sucrose, as on the starch-containing diets. In a second series, rats on diets containing starch rather than sucrose had less liver fat, less cholesterol in liver fat and less kidney damage than those receiving sugars. The highest serum cholesterol appeared in animals receiving their carbohydrate as dextrose. In a third series, pioneering research on cellular metabolism has shown that a protozoan, *Tetrahymena pyriformis*, which requires many of the same nutrients as mammalian cells, grew and thrived better when the nutrient media contained starch or glycogen rather than sugar. Maximal growth with simple sugars (dextrose or fructose) was about half of that with starch or glycogen, and was intermediate with dextrin or maltose in the media.

3. *Amount of linoleic acid in diet found to effect food intake of infants.*—In contract research at the University of Texas, it was found that as the dietary linoleic acid was decreased from 4 to 0.1 percent of the total calories, the infants, demand for food increased from about 85 to 155 calories per kilogram per day. However, their weight gains were similar, indicating greater efficiency in utilization when the diet contained more linoleic acid. Diets of infants appear adequate in linoleic acid when this substance provides 4 percent of the calories, which is about the amount found in mother's milk.

4. *Factors affecting ascorbic acid content of vegetables studied.*—Some fresh as well as frozen broccoli was found to contain degradation products of ascorbic acid, indicating vitamin losses prior to cooking. During the houshold cooking the chief factors in losses were longtime cooking (beyond 5 to 10 minutes boiling or 2 minutes pressure cooking) and leaching into the water during the first 5 minutes of cooking. Properly cooked, the percentage losses were similar for fresh and frozen broccoli. However, after cooking, the ascorbic acid content was higher in the fresh vegetable than in the frozen, because as received from the market its initial content was usually two to three times higher.

5. *Nutritional evaluation of the U.S. food supply.*—The nutritive value of the per capita food supply is estimated yearly and compared with earlier years to indicate long-term trends. The latest estimates show that over the past 50 years food energy (calories) are down from 3,600 calories per person per day in 1909 to about 3,200 in 1958. More protein is being furnished by animal products—two-thirds today compared to one-half in 1909. Supplies of calcium and riboflavin are up mainly because of increased consumption of milk. Supplies of B vitamins and iron are higher today than in earlier years because of enrichment of cereal products. Ascorbic acid and vitamin A value increased fairly steadily until 1946 but this trend has reversed itself because of the deceases in the consumption of some vegetables and fruits in recent years.

6. *Food consumption and dietary levels as related to the age of the homemaker.*—Peak expenditures for food are made by families in which the homemaker is between 30 and 50 years old; smallest expenditures by households in which the homemaker is 60 years and over. However, on a per person basis, households in which the homemaker is 50–59 years old spend the most, and the households in which the homemaker is under 30 spend the least.

Although the allocation of the average food dollar to any one of the major food groups differs at most by only 2 or 3 cents, age differences do appear in the selection of individual foods within the broad categories. Younger households are more likely to select such items as luncheon meats, canned vegetables, soups, mixtures, fresh fluid and processed milk, soft drinks, chocolate, and cocoa; the older groups are apt to have more of most types of meat, poultry, cheese, butter, coffee, tea, sugar, and fresh fruits and vegetables.

In households with homemakers 60 and over, a somewhat greater proportion than those in younger groups have diets that fail to meet the recommendations of the National Research Council in nutrients. For example, the data from a recent household food consumption survey shows that 13 percent of households with homemaker 60 years and over failed to meet the recommended allowances for protein compared with 5 to 8 percent in the younger groups; 27 percent failed to meet the riboflavin allowance compared to 14 to 20 percent in the other groups; and 29 percent had less than recommended amounts of ascorbic acid as compared to 24 percent in the other groups.

7. *Guides to better nutrition.*—Research findings have important applications to problems of health and well-being. Current knowledge of nutritional requirements and how they may be met by foods have been translated into guides to help people choose and use foods wisely. For example, popular adaptations of the Department's food budgets have been made for different types of families, such as the family with young children, the family with school children, and the family of older persons. Because studies show that many persons have nutritionally poor breakfasts, the leaflet "Eat a good breakfast to start a good day" was revised also to include current knowledge.

To achieve a better-fed population emphasis is being given to nutrition education and ways of making it more effective. This calls for better informed leaders, as well as sound educational materials. Hence this year's four issues of Nutrition Committee News were planned to stimulate nutrition education activities, and to suggest sources of information and teaching materials.

9. *Energy-saving kitchen designs developed.*—Three kitchen designs based wholly on investigations of space requirements and energy expenditures for household tasks have now been developed. These kitchen plans show great promise for normal homemakers as well as for women who must conserve energy. They are both energy saving and time saving. The designs for the kitchen work areas and storage facilities make use of research findings on energy expenditures for housework as related to household equipment and to work procedures. The first of these kitchens—a kitchen workroom—has been on display at the Agricultural Research Center for the last 3 years and has been visited by over 13,000 persons. The second—a kitchen family room—was placed on display during the summer of 1959. The third—a smaller kitchen—providing only for food activities and eating—has only recently been developed.

10. *Relative performance of laundering agents in actual use studied.*—In seeking a basis for predicting effectiveness of detergents and bleaches for home laundering of fabrics, unsoiled swatches of bleached cotton sheeting washed in a small experimental washer (launder-ometer) were compared with naturally soiled pillow cases washed in household equipment. The same relative effectiveness of detergents and bleaches on fabrics was observed when washed in the laboratory-type as compared to the household-type equipment. However, such evaluations did not predict the specific degree of whiteness to be expected in home laundering of naturally soiled fabrics. Tests showed that both unsoiled and naturally soiled fabrics dried outdoors suffered greater damage than those dried by other methods. Wear accounted for about 50 percent of the total chemical change.

## Administration of Payments to States and Research in Alaska, Puerto Rico, and Virgin Islands

Mr. Whitten. Thank you, Dr. Stiebeling. We shall now have inserted in the record pages 75 and 76 which presents the work of the

agricultural experiment stations in Puerto Rico, the Virgin Islands, and Alaska.

(The information follows:)

ADMINISTRATION OF PAYMENTS TO STATES, AND RESEARCH IN ALASKA, PUERTO RICO, AND VIRGIN ISLANDS

CURRENT ACTIVITIES

For work to be done under Federal grant funds, new and revised research proposals from the State agricultural experiment stations are evaluated and approved; annual programs and budget allotments are reviewed and approved; work and expenditures of each experiment station are examined in the field; and assistance is given to States in organizing, planning and coordinating their research.

The Department operates agricultural experiment stations in Puerto Rico, the Virgin Islands, and Alaska. In Puerto Rico research is conducted primarily on tropical and subtropical crops of economic importance to the continental United States, including food, forage, and specialty crops. In the Virgin Islands research and extension work is conducted in the fields of soil and water conservation, improvement of crop plants for commercial and home use, animal husbandry, and development of better rural living conditions. Research in Alaska, carried on as a joint program of the Department and University of Alaska, includes soil analysis, horticultural studies, animal husbandry, agricultural economics, agricultural engineering, insect and plant disease control, and field crop improvement studies.

SELECTED EXAMPLES OF RECENT PROGRESS

1. *Income, investments and costs analyzed for farms in Alaska.*—Records from 26 cooperating farms analyzed in cooperation with the Alaska Department of Agriculture, show that during 1958 a minimum unit to return a yearly net income of at least $5,000 requires: for poultry, a flock of 2,000 chickens or production of 40,000 dozen eggs; for dairying, a herd of 18 to 20 milk cows producing 200,000 pounds of milk; for potatoes, 20 planted acres yielding 200 tons; for grain, 200 planted acres yielding 220 tons. Investment and operating costs are 150 to 200 percent of comparable units in the 48 mainland States.

2. *Breeding Tephrosia vogelii in Puerto Rico advanced.*—Sixteen different introductions of this plant, a promising source of safer insecticides, were analyzed. Rotenoid content varied from 0 to 2.9 percent on a dry-weight basis. The higher yielding strains meet the requirement that rotenoid content should be at least 1 percent for the strain to be commercially feasible. Basic research in chemistry has provided improved methods for the determination of the desired toxic substances and their characteristics in the strains of Tephrosia.

3. *Potential of woody plants for feed and forage for livestock in Virgin Islands established.*—Climatic and economic limitations on feed and forage in the Virgin Islands direct attention to the use of established woody plants that will thrive under the islands' adverse conditions of deficient rainfall and sparse supply of potable water. In a 5-year test of such plants, it has been established that Tan-Tan (*Leucaena glauca*) is superior in protein produced per acre, longevity of the stand, and ease of harvesting. However, it was found that four other leguminous plants—Flamboyant, Thibet, Gliricidia, and Pigeon peas—although less desirable than Tan-Tan will yield from 5 to 7 tons of dry matter per acre per year under proper management.

## PLANT AND ANIMAL DISEASE AND PEST CONTROL

INSPECTION SERVICE AGAINST THREAT OF FOREIGN DISEASES AND PESTS

Mr. WHITTEN. I notice that we are requested here for $504,600 for plant quarantine work in 1961. That is an increase. From the justification statement it would appear that the St. Lawrence Seaway enters into it, and increased travel also enters into it.

I thought the statement made yesterday as to the volume that you are having to deal with is rather significant, and, to some degree, startling.

Now, with the constant increase in plane travel, do you see any end to this? Is the problem going to get greater and greater?

PLANT QUARANTINE WORK

Dr. SHAW. I think the plant quarantine workload is going to get greater and greater as we go along, with increased travel occurring regularly in trains, planes, automobiles, and ships.

Mr. WHITTEN. I am sure we on this committee are all very practical, and holding public office, at least for the moment, I would like to claim a little credit now and then—we have to. Two years ago we insisted that the announcements to passengers embarking in foreign countries, that what was prohibited from being brought, be made quite clear in the notices handed out. We had the cooperation of the Department and the other departments involved. Have you noticed any significant improvement as a result of that? Or was our thought something that didn't pan out?

Dr. SHAW. Could Dr. Clarkson reply to that?

Dr. CLARKSON. Yes, Mr. Chairman, I think that there has been a steady improvement in the transmittal of information to travelers and shippers as to the U.S. quarantine restrictions and procedures, and how they should meet those restrictions. It is not perfect, by any means, but we have worked steadily with the airlines, with the shipping companies, with the ground transportation people, with the State Department, with our own agricultural attaché, with the customs service, and with everyone that we could reach, in an effort to get this information across.

Mr. WHITTEN. Dr. Clarkson, I am not pressing at the moment to push this burden back on the transportation companies, but in view of the present cost may I have for the record how much we are spending in this inspection-type work; may we have that figure?

Dr. CLARKSON. Around $5.4 million.

Mr. WHITTEN. $5.4 million, and we are asking for another half million here.

CONSIDERATION OF PENALTIES FOR VIOLATION OF REGULATIONS

You testified yesterday, and it will appear in the record, as to how many plants and how many times you have found things in the baggage or carried by passengers that were in violation of our quarantine. I wonder if you could give us an estimate of how many times, in your opinion, or what percentage of those numerous instances the act was done willfully because of the desire to have that plant here, or how much of it was done in ignorance?

The point I make is, and if this is going to constantly increase the cost to the Government, it might be that we should explore the possibility of putting some burden on the carrier and some penalty on him, when he didn't make efforts to keep it from starting.

If a very small percentage is done willfully and intentionally, for the purpose of bringing in something that they know is not allowed, it would largely stop the rest of it from coming in because nobody had gone to the trouble of stopping them before they started.

I would guess, from observations of human nature, that most any

passenger that was doing something unwittingly would be embarrassed to have plants or fruits, or whatever they are, discovered.

So, if it is going to grow in cost, it might be that we should make it to the interest of the carrier to make a little more effort to at least limit these objects to those that were willfully—where they probably couldn't stop it themselves.

Dr. CLARKSON. I quite agree with you, Mr. Chairman.

Last fall we convened a meeting of those in industry, both those interested in quarantine practice and those who are concerned with the shipping trades, for the purpose of trying to develop with them ways and means in which they could help in getting this job done.

In other words, in getting compliance with the requirements.

Of course, first of all, an understanding of the requirements is necessary. We placed before them the proposal that they work through their advertising agencies, so as to get mention of quarantine requirements in their advertising for travel, for example the quarantine restrictions on citrus and other fruits, plant materials, animal products, and so forth.

I haven't seen any national advertising that has had anything of that kind combined with it, as yet. But we have seen a good increase in the development of interest among these people to get in and help.

Mr. WHITTEN. If we were to ask you to prepare a bill, where half of this cost would be charged to the carrier in each instance where some object was discovered; if we were to have you prepare that and put it in a bill, would that cause them to give more attention to it?

Dr. CLARKSON. I think the thought that such a thing was being considered would have effect.

Mr. WHITTEN. I am serious about it. Will you make your own statement as to what your opinion would be as to what percentage of this total amount might be willfully done, and what percentage would be inadvertent, you might say?

Dr. CLARKSON. I think there is a small proportion and I do not know what percentage it is, less than 10 percent, that is willful. The customs service has been assessing more and more fines against those people where it is obvious that it is willful.

Mr. WHITTEN. If we were to make some effort to get the customs service to fine the carrier, unless the carrier showed to the customs that they made every effort that a reasonable man would make to prevent, unless they were in position to show that they had made every effort to call it to the attention of the passengers, who, in turn would leave the passenger in the position of being willful if he were caught, wouldn't that, perhaps, be a means for us to reach this situation?

Dr. CLARKSON. Well——

Mr. WHITTEN. Could we have in the record at this point the present law having to do with customs and the rights of customs to penalize the individual who may bring these things in? Please put it in the record at this point and include any authority that exists for that customs official to visit any type of fine or penalty on the carrier in the absence of the carrier showing that every effort had been made to give proper notice to passengers.

(Information requested follows:)

STATUTES AUTHORIZING PENALTIES FOR ATTEMPTS TO SMUGGLE MATERIALS COVERED BY AGRICULTURAL QUARANTINE

The penalty for violation of any provision of the Plant Quarantine Act, upon conviction, is a fine not exceeding $500, or imprisonment not exceeding 1 year, or both, in the discretion of the court (7 U.S.C. 163). A similar penalty is prescribed for violation of section 103 of the Federal Plant Pest Act or of any regulation promulgated under that act (7 U.S.C. 150gg). The same penalty is prescribed in the Honeybee Act for violation thereof (7 U.S.C. 282). The Animal Quarantine Act of 1903 provides for a fine of not less than $100 nor more than $1,000, or imprisonment for not more than 1 year, or both (21 U.S.C. 122).

The Bureau of Customs, Treasury Department, is authorized to assess penalties for undeclared merchandise or baggage, including plant and animal material, as follows: A master or other person in charge of a vessel or vehicle is required to manifest foreign merchandise brought to the United States. If such is found on board the vessel or vehicle unmanifested, it is subject to forfeiture and the master or other person in charge is subject to penalty equal to the value of the unmanifested merchandise. If any such merchandise is landed by a crew member or other person, the master or other person in charge, the person landing it, and any other person who knowingly is concerned, or aids in securing such merchandise are each subject to the penalty (19 U.S.C. 1453, 1584; 18 U.S.C. 545).

The foregoing is also true with respect to aircraft, except that the maximum penalty is limited to $500. The penalty for willful smuggling is a maximum fine of $10,000 or imprisonment not to exceed 5 years, or both (18 U.S.C. 545). Undeclared merchandise in a passenger's baggage is subject to forfeiture and the passenger has incurred a penalty equal to the value of the merchandise (19 U.S.C. 1497). The passenger and crew member are distinguishable under these statutes as the master or other person in charge is responsible for undeclared merchandise in the crew member's possession.

There are no statutes requiring the vessel, vehicle, or aircraft operator to inform passengers of prohibitions on importations although it is common practice to post notices in various parts of vessels.

The Bureau of Customs recently revised Customs Form 6063, United States Customs Baggage Declaration and Entry, to include a specific question as to possession of plant or animal materials. Variations of that form for use in limited areas will, we understand, be similarly revised as reprinting becomes necessary.

Mr. WHITTEN. I should be glad to have, too, not especially for the record but for the committee, a proposal, in writing, of what you feel would improve the situation along the lines I have suggested.

Dr. CLARKSON. I would like to make one comment, if I may.

I said knowledge or consideration of such legislation would have considerable effect. That is correct, but I do want to say at the same time that I do believe that the carriers are making an honest effort now to work this thing out and to be as helpful as they can.

Mr. WHITTEN. In this area, go over the record. I don't want to leave you on the limb.

Dr. CLARKSON. There are a number of people who, for some reason or other, even though they have been informed, cannot believe that an orange, or apple, or piece of meat, or small plant which they have in their baggage is the thing that we are talking about because they can't see a thing wrong with it. It is in that area that we have our greatest difficulty and it is in that area that the carriers would have their greatest difficulty, even though they had extended themselves to be as helpful as they possibly could in this area.

Mr. WHITTEN. If the carrier, however, gave notice to each passenger that this is strictly prohibited and the passenger found with this will be fined by the U.S. Customs, then if the person in the face of such a notice was discovered with it, he would be subject to the fine because there would be evidence that it was willful. If the carrier failed to give that proper notice, it leaves you where you can't do

anything except check all this baggage. I think it is an area we should explore and you give us benefit off the record of what we might do to put part of this burden back on the carriers to go far enough to where if a person does do it, it is evident that it was willful.

Dr. CLARKSON. We will be glad to discuss that among ourselves.

Mr. WHITTEN. Mr. Horan, you had a couple of questions here?

PEAR DECLINE

Mr. HORAN. Is it in order now? Catherine May and I are interested in the work being done on pear decline. I assume that is cooperative?

Dr. BYERLY. It is, Mr. Horan. I have a statement that I would like to submit for the record, if you wish.

Mr. HORAN. That would be fine.

(The statement is as follows:)

REPORT ON PEAR DECLINE RESEARCH

The term "pear decline" has been given to a devitalized condition of trees observed in pear orchards in the State of Washington over a period of years. Various causes have been ascribed such as nutrition, soil moisture waterlogging of soil, rootstocks, winter injury, insects, and diseases. The occurrence of the trouble in orchards resulting in weak growth and lack of production did not follow any particular pattern that would confirm any of these various factors mentioned as causes of the trouble. Growers' reports of observations of individual orchards became more numerous and by the early 1950's pear decline appeared to be on the increase. Growers requested a study be made looking toward a solution of the problem.

*Preliminary surveys.*—In August 1955 a four-man research committee was appointed to make a field study. This committee surveyed pear decline in the Yakima and Wenatchee areas in Washington and reported its findings to Dr. M. T. Buchanan, director of the Washington Agricultural Experiment Station. It was concluded that a research program should be initiated to determine the cause of the trouble.

During the next 2 years, 1956–57, eght research workers of the Washington Agricultural Experiment Station and the U.S. Department of Agriculture engaged in other research problems on fruits devoted some time to pear decline.

From the preliminary studies and additional surveys made during this period considerable evidence pointed to a scion-rootstock relationship as a possible cause of decline. Trees propagated on Japanese rootstocks appeared to be more seriously affected than trees on French seedlings or American variety seedlings such as Bartlett or Winter Nelis. The possibility of a virus being involved in this rootstock relationship was recognized but the preliminary studies had not proved transmission of a virus. Further research on this aspect of the problem was justified. It seemed clear, however, that nutrition, cultural practices, and sprays used to control insects and diseases were not casual factors.

*Stepped-up research program in 1958–59.*—Early in 1958 Congress made $6,250 available through a supplemental appropriation for studies on the pear decline problem. These funds were used to obtain the services of a plant pathologist, Dr. Herman Schneider, a recognized authority on the relationship of the anatomy of woody plants to certain virus diseases. Arrangements were made with the Agricultural Experiment Station of the University of California at Riverside for Dr. Schneider's services for a limited time. The 1959 agriculture appropriation bill directed that $20,000 be spent on pear decline research. By redirecting its fruit research at Wenatchee, Wash., the Agricultural Research Service made available the services of two plant pathologists located there on a half-time basis. Their job was to study any possible association of virus diseases with the pear decline problem. A small greenhouse was also provided at Wenatchee for this work. A horticulturist was employed to study the relationship of rootstocks to pear decline. This work is needed to develop information for growers who are replanting in old orchard sites or contemplated setting out new orchards.

Members of the staff of the Washington Agricultural Experiment Station participated in the studies. The pear processing industry and the Washington State Fruit Commission contributed funds totaling $10,000 a year for use in pear decline studies. Through the efforts of the Research and Scholarship Committee of the Washington Horticultural Association a tract of land has been made available near Prosser to be used largely for long-term experiments relating to the decline problem. These will include studies on rootstocks for pears and the possible role of viruses in the decline problem.

*Results of anatomical studies and tentative conclusion.*—The anatomical studies that have been made of tissue at the bud union of decline trees show that there is a plugging of conducting tissue at this stock-scion union that interferes with the movement of food materials from the top of the tree to the root. This would result in starvation and dying of roots and account for the wilting of trees observed in some orchards. It may be mentioned that some fruit tree disorders that are caused by a virus behave in this manner. Up to now, however, work to determine if a virus is present in decline-affected trees has given only negative results.

*Current status of problem and tentative conclusion reached by research workers.*—The research workers of the Fruit and Nut Crops Branch, Agricultural Research Service working in cooperation with research personnel of the Washington Agricultural Experiment Station, issued the following statement on December 10, 1959, as part of an overall report on the problem:

"(1) *Nature of pear decline.*—With the information that is now available, it appears clear that pear decline is a bud union disorder, primarily owing to undesirable root-top combinations, and contributed to by one or more of a number of factors. Physiological changes at the bud union result in weakening or death of root tissue with a resultant weakening or death of the tops. Factors which may contribute to the expression of the disorder include one or more of the following and no significance is attached to the order in which these are given.

"(*a*) Winter injury.
"(*b*) Periods of high summer temperatures.
"(*c*) Waterlogging of soil resulting in root injury.
"(*d*) Nematodes.
"(*e*) Harmful soil fungi.
"(*f*) Viruses.
"(*g*) Toxins secreted by insects.

"(2) *Practical solution.*—Regardless of the causal mechanics of the unthriftiness and decline of Bartlett pear trees, the practical solution so far as the grower is concerned is to plant pears on their own seedling roots or on French seedling roots. In Washington pears on *Pyrus usurriensis* root or *Pyrus serotina* root should not be planted.

"(3) *New research work.*—In addition to work that is now underway, further information is needed on the most desirable root-top combinations, necessitating the development of a rapid method for determining desirable root-top combinations."

Japanese pears (*P. serotina* and *P. usurriensis*) were extensively used as the root stock for pears in the Pacific Northwest during the period from World War I until about 1930 when French seedling stocks were not so readily available. In studying the problem it is not easy to tell on affected trees just what the root stock source is.

Following the first observations in Washington a decline of pear trees sometimes resulting in death of the trees was observed in the Rogue River Valley of Oregon and possibly in California.

The Fruit and Nut Crops Branch of the Agricultural Research Service plans to continue its research program on pear decline in fiscal year 1961 on the basis of 1960 expenditures, namely $20,000.

## PEA VIRUS RESEARCH

Dr. BYERLY. With respect to pea virus, I would be pleased to supply a statement for the record tomorrow, if I may.

Mr. HORAN. I wish you would. I wish you would make note of the progress being made in developing through other plants some corrective measures on the matter of various viruses. They are doing a

lot of that work in Wenatchee. That, again, I think is cooperative.

Dr. BYERLY. Yes, that is correct.

Mr. HORAN. In the matter of pear decline, have you found that to be a root condition?

Dr. BYERLY. There is an abnormality at the root stock-scion junction. This is a difficulty apparently going back to the use of what is termed Japanese rootstock a few years ago when many orchards were planted.

Mr. HORAN. You know where that came from?

Dr. BYERLY. Do I know where the Japanese rootstock came from?

Mr. HORAN. That was the result of misdirected research, so research can go both directions. A fellow in the 1920's thought he would take Chinese roots and make pear trees more resistant to fire blight. We planted about 5,000 of them in 1928. We are pulling them out now after about 30 years, for one reason and another. There appears to be a connection there because you don't find so much of it among French-rooted trees.

Dr. BYERLY. The present recommendation is that Bartlett pears be put on Bartlett seedling stock in replanting orchards.

Mr. HORAN. The work on the virus was very interesting to me and I think it would be interesting to have some of that progress reported in the record.

Dr. BYERLY. I shall be happy to prepare it and put it in the record.

(The report is as follows:)

PEA VIRUS DISEASES

The Washington, Idaho, and Oregon Experiment Stations and the U.S. Department of Agriculture are conducting a cooperative research program on pea virus diseases. The States provide facilities and equipment and two professional men. The Department provides $7,500 for the support of Dr. Donald Barton's research on genetic virus resistance and genetic resistance to other diseases in peas and $5,000 for Dr. W. C. Cook's research on virus vector and other pea-aphid problems related to control of pea virus diseases.

There are more than 500,000 acres of peas including those grown for processing, seed, and dry edible use in the States of Idaho, Washington, and Oregon. Most of the land currently producing peas previously produced wheat. Oregon grows about 53,000 acres of processing peas having an annual crop value of $4 to $6 million; Idaho grows about 10,000 acres annually with a value of approximately $1 million; and Washington grows about 60,000 acres with a value of $6 to $8 million. Nearly one-third of the processing pea acreage and 95 percent or more of the total U.S. pea seed acreage is located in these three Northwestern States. It is apparent that this area constitutes a major source of this staple food product in the United States. In recent years this industry has been threatened by several diseases caused by viruses and fungi. It is imperative therefore, that a solution to these disease problems be found to assure continued production of this food commodity.

The importance of virus diseases in the Northwest is indicated by industry estimates that losses of 15–20 percent have occurred within recent years and that the average loss is approximately 10 percent annually. One or both of two major viruses or complexes of viruses are of potential importance in all the pea growing sections of the Northwest. Pea enation mosaic and pea streak virus are known to occur in this region, but it is not possible at present to assess losses from other viruses which occur.

A second pea disease problem in the Pacific Northwest and one of the most important from the standpoint of frequency of occurrence, general distribution and annual losses is root rot. Several pathogenic fungi present in the soils of the Northwest are capable of causing root rot. These fungi listed in order of importance are: fusarium, rhizoctonia, sclerotinia, ascochyta, aphanomyces, and pythium.

White mold caused by sclerotinia is present in many fields in the Columbia Basin and could become highly destructive there where conditions appear to be ideal for its development.

Other diseases such as powdery mildew, downy mildew, and ascochyta blight sometimes occur and cause considerable losses.

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THURSDAY, FEBRUARY 18, 1960.

Mr. WHITTEN. The committee will come to order.

Dr. Clarkson, we are glad for you to follow such course as you wish in the presentation of your charts. We have one or two items of increase that we haven't yet covered. You might cover those if you want to in your particular department and then use the charts, or you may want to use the charts in that relationship.

Dr. CLARKSON. Thank you, Mr. Chairman. Some of the items have already been touched upon in the hearing previously. I would like to say just a word or two about several of the plant and animal disease and pest control and meat inspection items. These are the regulatory activities of the Department that are intimately associated with the biological and chemical research programs.

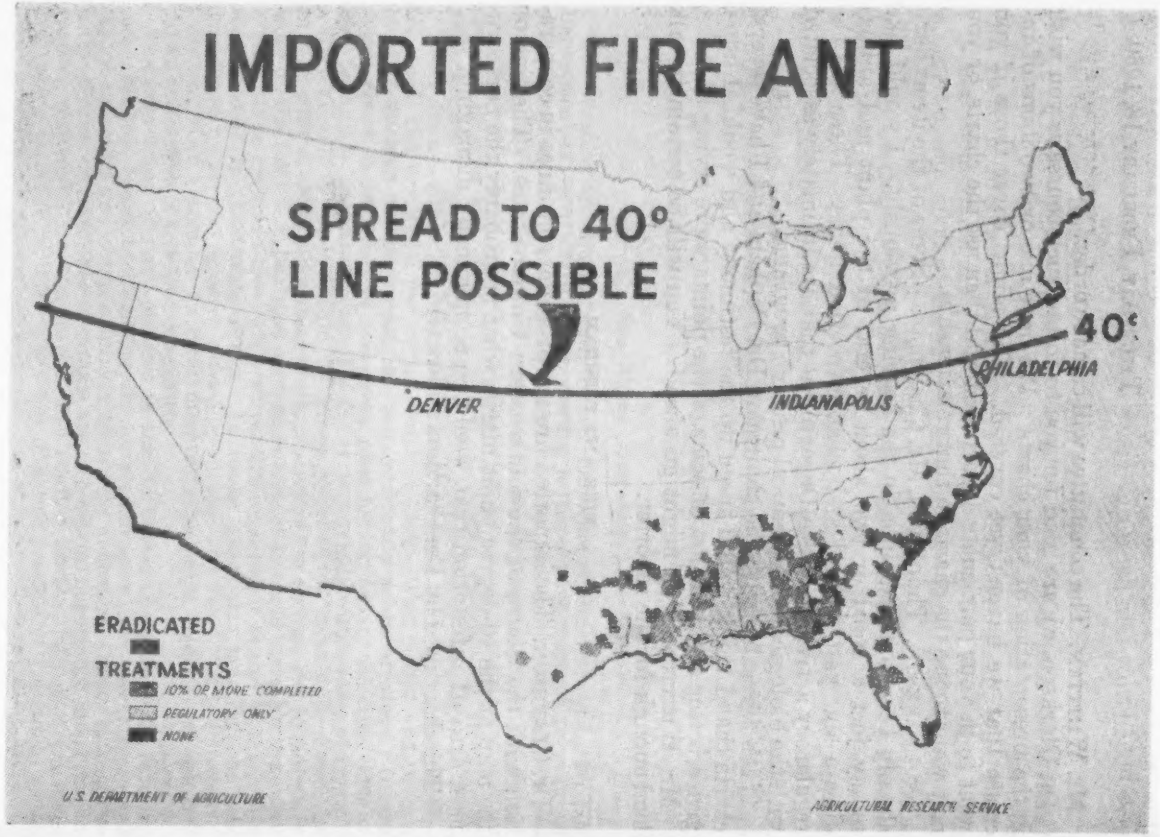
If it's agreeable with the chairman, Dr. Popham and I have several charts that I think would speed up the testimony and would, I hope, give a better appreciation of some of the points we're trying to make.

Mr. WHITTEN. You might go ahead. You will be certain to talk loud enough for the reporter.

### FIRE ANT PROGRAM

Dr. CLARKSON. The imported fire ant program continues in cooperation with the States of the southeastern United States. The line on the map at the 40-degree point marks what is probably the northernmost area of infestation that would be economically damaging.

(The chart used by Dr. Clarkson follows:)


IMPORTED FIRE ANT
SPREAD TO 40°
LINE POSSIBLE
40°
DENVER
INDIANAPOLIS
PHILADELPHIA
ERADICATED
TREATMENTS
10% OR MORE COMPLETED
REGULATORY ONLY
NONE
U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE

Dr. CLARKSON. During the year it has been possible to clear up all infestations in some 75 counties. These are the counties that are marked in the blue and white coloring. In quite a large area of the heavily infested part of the country, it has been possible to clear up about 10 percent of the infestation. Then you will see that there is a sizeable area in the center of the infestation where it has not been possible thus far to do any more than regulatory control, in cooperation with the States and counties to prevent further spread.

We have carried on an active methods improvement project as an integral part of this program, and because of that work, it has been possible to substantially reduce the amount of chemical that is necessary. We are using now in most areas 4 ounces of the chemical applied twice during a 3 to 6 month period, making a total of 8 ounces per acre. That compares with 2 pounds per acre which was used when we originally began this work.

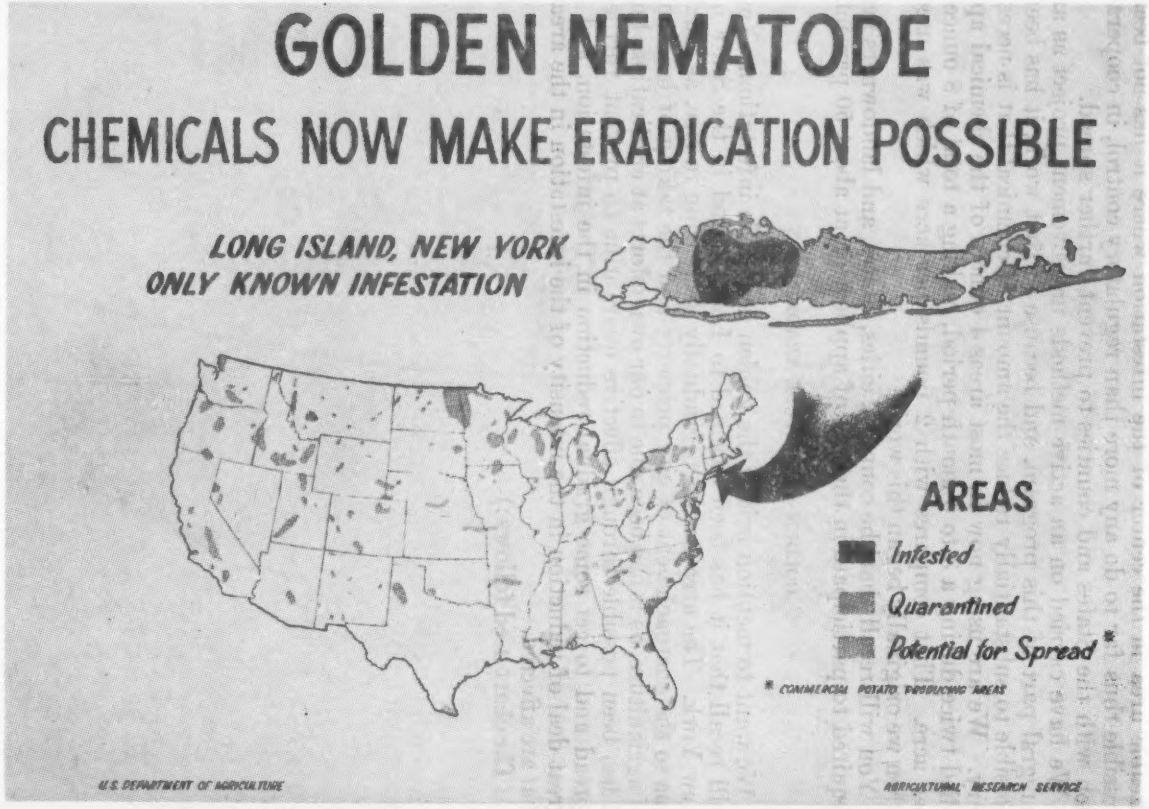
You will recall that the counties, cities, States, and landowners are required to participate in the cost of application at about 50 percent.

### GOLDEN NEMATODE ERADICATION

We want to mention briefly the golden nematode infestation. You will recall that it has been confined to Long Island in the State of New York. The area has been gradually decreasing in size, as much due to the encroachment of city property and the taking of land out of agriculture, as it has been due to our own efforts at eradication, but it has been possible through effective quarantine to prevent further spread and to get some gradual reduction in the infestation, and a great deal of reduction in the intensity of the infestation in the areas that are affected.

(The chart used follows:)

AGRICULTURAL RESEARCH SERVICE
U.S. DEPARTMENT OF AGRICULTURE


GOLDEN NEMATODE
CHEMICALS NOW MAKE ERADICATION POSSIBLE
LONG ISLAND, NEW YORK
ONLY KNOWN INFESTATION
AREAS
Infested
Quarantined
Potential for Spread *
* COMMERCIAL POTATO PRODUCING AREAS
U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE

Mr. WHITTEN. What kind of a treatment do you use there?

Dr. CLARKSON. First, the land is taken out of potatoes and tomatoes which are the host crops on which this nematode is most damaging. The State of New York reimburses the landowners for a portion of the difference in income that they would get from potatoes as against the alternate use that is permitted, and that gradually reduces the infestation. But, in addition, we have been working with fumigants and have found that two of them, D.D. and Telone have shown potentials for complete eradication.

We have quite a number of acres now that have gone for 3 years without any nematodes showing up, even with a host crop on the land. So our efforts this year will be concentrated on eradication to eliminate the infestation.

Mr. WHITTEN. What is that nematode? How is it classed?

Dr. CLARKSON. This is a cyst-forming nematode. Nematodes are eel-like worms. This one is microscopic in size. The parasite infests the root system of the plant and debilitates the plant so that in a heavy infestation the yield is seriously reduced.

Mr. WHITTEN. Does it require a host plant to continue to live, or would the land stay poisoned with the nematodes indefinitely?

Dr. CLARKSON. Because the nematode is a cyst former, which means that in its dormant stage it forms a very hard-shelled cyst, it will remain infective in the soil for quite a number of years. We don't know how many, but it would be in excess of 6 or 7.

Mr. ANDERSEN. One question, Mr. Chairman.

Mr. WHITTEN. Yes.

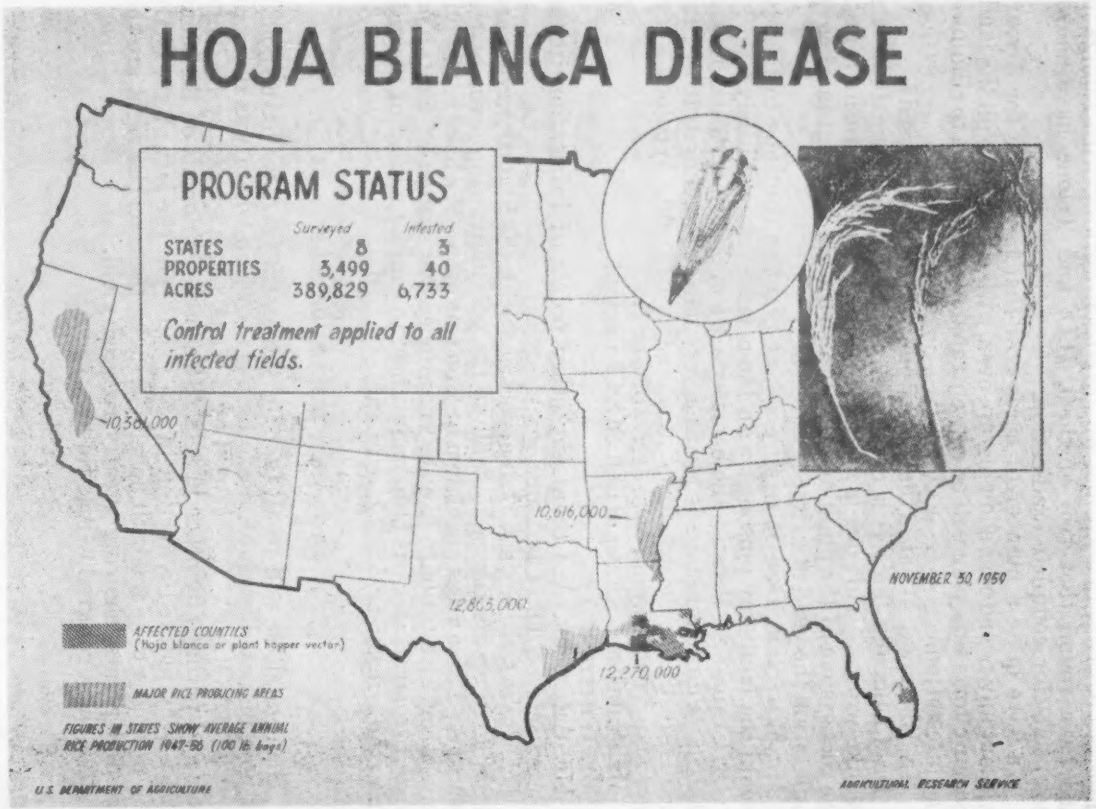
Mr. ANDERSEN. Are there any other points of infestation in the United States, Dr. Clarkson?

Dr. CLARKSON. No, sir. In cooperation with the States, surveys are made at intervals throughout all of the potato-growing areas of the country. Those areas are shown here on this map. We have not found any other infestation. A very comprehensive system of State and Federal quarantines has been maintained to prevent spread of the pest from the infected area in Long Island.

### HOJA BLANCA DISEASE OF RICE

The committee will recall that for the past 2 years we have spoken of hoja blanca disease of rice. This is a disease which was detected first in the Orient. It is caused by a virus. It is spread by leafhoppers and perhaps by other insects. It causes a chlorosis of the plant and a very marked reduction in the yield. On the left of the chart is a normal rice plant with normal kernels; these on the right are the diseased plants, showing greatly reduced yield.

(The chart referred to is as follows:)


HOJA BLANCA DISEASE
PROGRAM STATUS
Surveyed Infested
STATES 8 3
PROPERTIES 3,499 40
ACRES 389,829 6,733
Control treatment applied to all infected fields.
10,361,000
10,616,000
12,865,000
12,270,000
NOVEMBER 30, 1959
AFFECTED COUNTIES (Hoja blanca or plant hopper vector)
MAJOR RICE PRODUCING AREAS
FIGURES IN STATES SHOW AVERAGE ANNUAL RICE PRODUCTION 1947-56 (100 lb. bags)
U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE

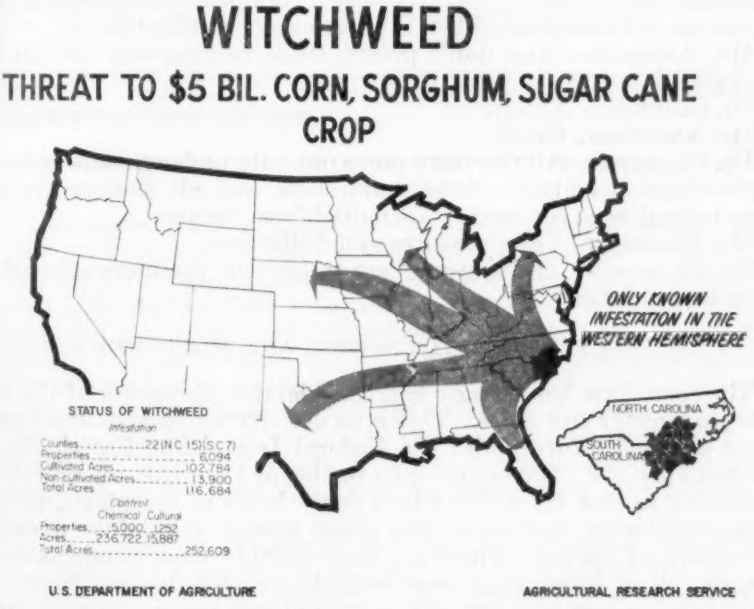
Dr. CLARKSON. This is a picture of the leafhopper that is responsible for carrying the virus, at least insofar as a carrier has been identified in the United States. We now have the disease identified in three States—Florida, Mississippi, and Louisiana—shown here in the red- and white-crossed area. The infested acreage is still small and under 7,000. All the infested areas have been treated with insecticides to kill off the insect vector. The products of those areas have been very carefully guarded to prevent spread.

We have been carrying on this work cooperatively with the affected States, and also carrying on surveys in other areas where rice is grown, and as yet unaffected, with moneys provided by the Congress in the contingency fund.

WITCHWEED

Witchweed, a parasitic disease of corn and a large number of other related crops, continues to be confined to a contiguous area in North and South Carolina. We found some additional infestations this year although not very many. They were all associated with the original area of infestation.

(The chart used follows:)




Dr. CLARKSON. During the year, in cooperation with the two States and with the landowners, all of the affected acreage has been treated either by withholding it from crops and planting a series of trap crops, which cause the parasite to germinate and it is then destroyed before it can flower and produce more seed, or by the use of herbicides which either kill the witchweed seed or kill the plant after it has germinated.

We feel rather more confident about this than we did a year ago, Mr. Chairman. It's going to be quite a long program but finding that

these herbicides do in fact kill the witchweed seed is a very encouraging sign. This seed, as the committee will recall, will remain viable in the soil in the absence of a host plant for up to 18 years, so it is necessary to find a way to kill them and we think we have that method now. It remains to be seen whether it will kill all of them.

Mr. ANDERSEN. One question on that, Doctor. Have you noticed any spread in the plants since you were last before us?

Dr. CLARKSON. There has been some finding of additional acreage in the generally infested area.

Mr. ANDERSEN. Along the perimeter which you had known previously, is that it?

Dr. CLARKSON. Along the perimeter, and of course there is an irregular pattern of infestation within that.

Mr. ANDERSEN. How far would you say that had extended in the extreme portions?

Dr. CLARKSON. The extreme findings were not more than 3 or 4 miles away.

Mr. ANDERSEN. That would indicate its rate of progress, would it not? The manner in which it travels?

Dr. CLARKSON. It is a soil-borne organism and would travel by whatever means soil travels. We have a very intensive system of quarantine on all these areas which, I think, is rather well enforced.

Mr. ANDERSEN. You don't permit them moving any soil in that region?

Dr. CLARKSON. No, sir.

Mr. ANDERSEN. Good.

Dr. CLARKSON. All the crops move out only under permit as well as agricultural machines—plows, harvesters, and all similar machines have to be cleaned before they are moved from the area.

Mr. ANDERSEN. Your measures sound effective.

Dr. CLARKSON. The measures are to prevent the movement of soil from that point on.

### FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT

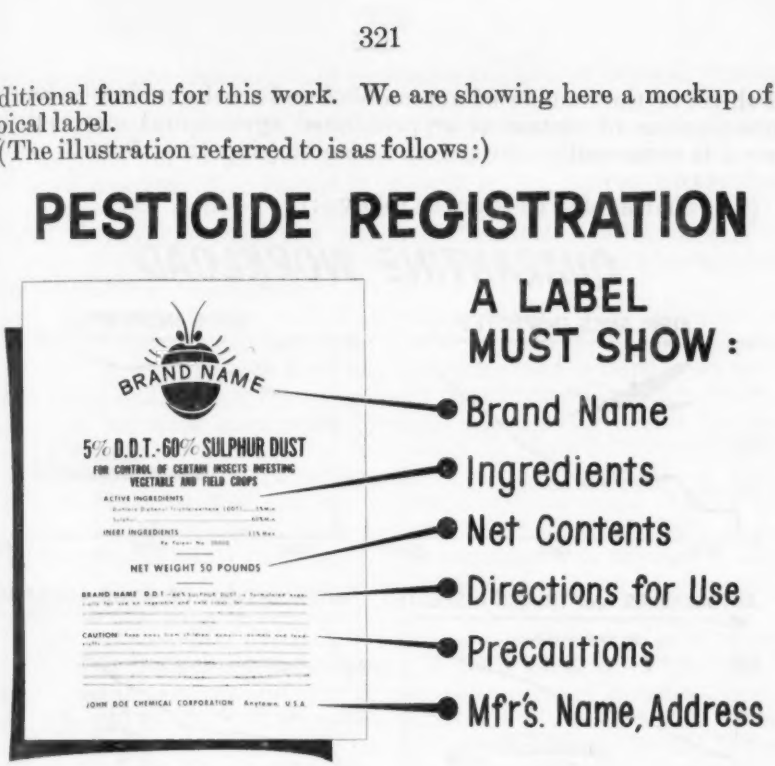
The committee has already had considerable discussion of the work done to register pesticides. This is an activity assigned to the Department of Agriculture under the Federal Insecticide, Fungicide, and Rodenticide Act. During the past session of Congress, an amendment was made to that act which added four classes of chemicals, nematocides, defoliants, desiccants, and plant growth regulators under the provisions of the act. There are some 4,000 of these products on the market, all of which must now be registered for the first time. The act is in effect now with regard to some of these chemicals; with regard to the others, the act becomes effective on March 5th. There is provision for the Secretary to extend the time for some classes if it can be done without damage to the public health and safety. It is anticipated that we will extend the time for registration for a number of these chemicals on which the problem of residues is either nonexistent or are at a minimum.

### BUDGET INCREASE FOR REGISTRATION ACTIVITIES

Nonetheless, this has added a great deal to the workload of the registration unit, and the budget for next year carries $100,700 in

additional funds for this work. We are showing here a mockup of a typical label.

(The illustration referred to is as follows:)




Dr. CLARKSON. Such a label must carry a brand name which identifies the product, it must carry a statement of the ingredients which shows the active ingredients and either names the inert ingredients or gives their percentages. It must show this in technical terminology and if that is not readily understandable, then also in common terminology. It must show the net contents, the directions for use and the precautions to be taken in such use to protect the user, prevent damage to crops or to livestock or to man, and also to make sure that the food or feed on which the chemical is used does not have residues which would be unsafe or which would be out of line with tolerances set by the Food and Drug Administration for the food or feed.

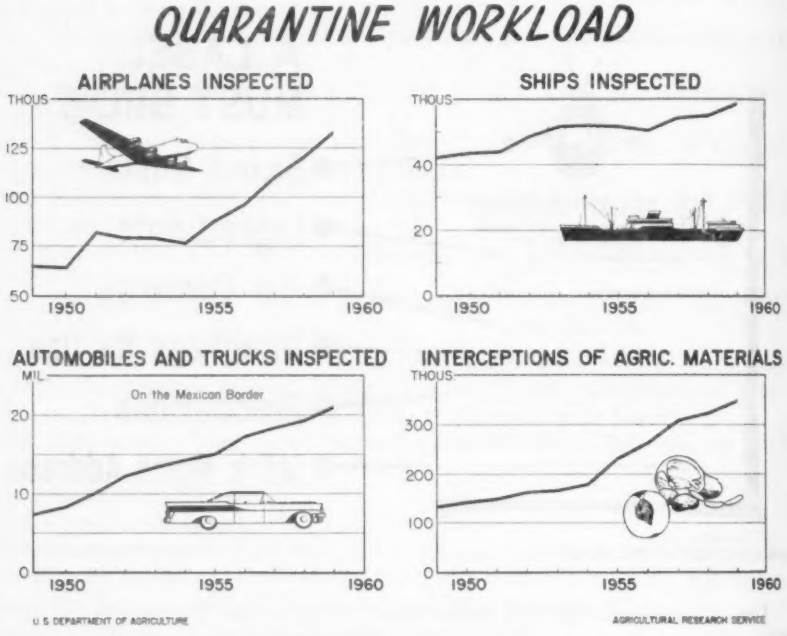
Then, of course, the label must also carry the manufacturers name, or the distributor's name, and address. In other words, the person who is responsible for the movement of this product in interstate commerce. No product of these classes may move in interstate commerce without this registration. We have some 45,000 registrations current, this will add about—4,000 formulations.

## QUARANTINE WORK

Yesterday we touched briefly on the quarantine work and the chairman commented that we seemed to be on an escalator in terms of the workload and in terms of the funds that are sought to carry out the work. These four small charts indicate the trend in that workload. Whether it be in terms of number of planes coming in, or the number

of ships, or the number of automobiles and trucks, or in terms of the interceptions of restricted or prohibited agricultural materials, the trend is consistently upward at a rate varying from 5 to 15 percent each year.

(The charts referred to are as follows:)




Dr. CLARKSON. We carry out quarantine work on animals and animal products through an animal inspection and quarantine division, and work on plant and plant products through a plant quarantine division, but where it is possible to combine the workload, we have it done by a single inspector in the field. For example, in regard to passenger baggage. Instead of having men from both divisions working on this, the inspectors of the plant quarantine division in most instances carry out all this work in cooperation with the Bureau of Customs.

RESPONSIBILITY OF TRANSPORTATION COMPANIES

Mr. WHITTEN. Dr. Clarkson, following up our discussion along that line of yesterday, is there any requirement for any of these carriers, commercial carriers, whether they are airlines or ships or trucks or automobiles, placing any responsibility on them for which you could exact penalties if they failed to discharge them, or is it just a matter of working out agreements? I'm thinking that this is going to get to a point where the cost is going to be out of sight if this thing continues to grow, and there should be some way that if a passenger shows up on this side with these materials, that the carrier would have to serve such notice that the fact that you had it would be evidence of willfulness. And if the passenger in turn was able to say that he hadn't been properly advised, then there should be some way to catch the carrier with it, because unless we do something like that, this job is

going to get to be tremendously expensive and almost beyond what can be done.

Dr. CLARKSON. Mr. Chairman, as it now stands, the carrier has a responsibility for cargo that is out of line. It works out in this way. If a prohibited plant or animal is brought in, we can require that it be returned to the country of origin on the same carrier. But in the matter of passenger baggage, which is the difficult situation and the one I think the chairman has in mind, there is no such placing of the responsibility on the carrier.

Mr. WHITTEN. Now could I interrupt there. The fact that you would send the animals back, the carrier is penalized to some extent, by having to haul it back free, but it still leaves the burden on you to catch them, so I mean it doesn't relieve your inspection job in the least there. If we were to provide through appropriate means for some kind of penalty on a ship, on a ship company, or on an aircraft carrier for permitting it, then the burden shifts to them to see that it doesn't happen. When it does happen it's expensive to them. Other than that, I think the Congress will have to count on those folks to contribute to the cost of inspection. That's another way to reach it where they will have to come through with paying a part of the cost of inspection.

Dr. CLARKSON. Mr. Chairman, I brought in the cargo only to show that we had the arrangement there. I don't think it's a problem because nothing can come off that ship in the nature of cargo without its being cleared through Customs, and Customs will not let it go without it coming to our attention. That does not take inspectional surveillance on our part to find the item. It is brought to our attention by Customs.

Mr. WHITTEN. Yes.

Dr. CLARKSON. But with passenger baggage, the problem is with things that are locked up in the grip or the trunk of the passenger, and into which the carrier, at least up to now, does not look. We have given some thought to that since it was discussed here in the committee yesterday, and we think that a good deal can be done along that line. With the chairman's permission, we would like to take that up directly and frankly with the carriers.

Mr. WHITTEN. I wish you would, because this thing is getting tougher and tougher and it's taking more and more people and more and more expense, and the number of articles or items or plants or what have you is tremendously large.

Dr. CLARKSON. I placed before the chairman a document that is just out. It follows up on some of the things we were mentioning yesterday in regard to our meeting with representatives of the carriers and industry last fall. There are scattered through that booklet quite a number of suggestions of ways in which the carriers can be helpful in cutting down the need for this inspection and in helping to facilitate it.

COSTS RESULTING FROM INTRODUCED PESTS

Mr. WHITTEN. What if you were to require a carrier to certify that each passenger was personally notified of the responsibility of the passenger not to bring any of these things in, and then if the carrier made such a certification and was required to do so for every trip, certainly in order to make that certificate, they would have to inform

each passenger. In case of failure, you could levy some penalty on them in case they should so certify, and if passengers showed up with items not allowed, they would automatically be held to have done so willfully. It might tend to break this up.

At this point I wish you would, at your convenience, increase and enlarge the record to show some of the outstanding costs that we have had in this country from pests that in years past have come here, both in cost of eradication and in cost to farmers and in cost to others.

Dr. CLARKSON. Yes, sir.

Mr. WHITTEN. I think those examples would at least indicate just how serious this problem is, and just how essential it is that we do everything we can, because the annual cost of inspection, big as it is, is probably minor as compared with the damages that resulted in years past where a few of these things have gotten in.

Dr. CLARKSON. I'd be glad to do it, Mr. Chairman.

(The information requested follows:)

ESTIMATED LOSSES RESULTING FROM VARIOUS INTRODUCED PLANT PESTS AND ANIMAL AND POULTRY DISEASES

*Boll weevil.*—Introduced from Central America; first noted in south Texas in 1892. Estimated annual economic loss to the United States for the 1942–51 period, $228,580,000.

*European corn borer.*—Introduced from Europe, possibly in broomcorn importations; appeared in Massachusetts in 1910. Caused loss in United States in 1957 estimated at $158,841,000.

*Japanese beetle.*—Introduced from Japan, possibly in soil with plants; first noted in New Jersey in 1916. Now causes annual loss of approximately $10,000,000.

*Spotted alfalfa aphid.*—Introduced from unknown area; first noted in California in 1954. Caused loss in 1956 of approximately $42,000,000.

*Witchweed.*—A corn plant parasite occurring in Africa, Asia, and Australia. First noted in North Carolina and South Carolina in 1956. Estimated potential covers most of Corn Belt. Losses and costs of eradication measures to crop year 1960 are over $4,000,000.

*Mediterranean fruit fly.*—First discovered in Florida in 1929. That infestation was eradicated at an estimated cost of over $6,500,000. The Medfly was next discovered in Florida in 1956. This infestation has also been eradicated at an estimated cost of over $10,000,000.

*Khapra beetle.*—Probably introduced from Europe or southern Asia. First noted in California in 1953. Overall cost to January 1960 eradication measures estimated at $7,000,000.

*Foot-and-mouth disease.*—Six major outbreaks have occurred since 1900. Source of infection traced to garbage from foreign ships and, in one instance, contaminated vaccinia virus from Japan used in the production of smallpox vaccine. Total cost to Federal and State Governments of eradicating the disease in these six outbreaks approximately $17,550,000. Estimated indirect losses of these six outbreaks $175,000,000. Cost to U.S. Government in eradicating the disease in Mexico to prevent its spread into the United States, approximately $135,000,000.

*Vesicular exanthema.*—Known to have existed in California as far back as 1932. Not identified outside California until 1952. Emergency proclaimed August 1, 1952, and terminated due to eradication on October 22, 1959. The cost to Federal and State Governments to eradicate this disease was over $20,000,000.

*Brucellosis.*—This disease gained entrance into the United States many years ago. Means of introduction is unknown, although possibly it was introduced by infected goats from the Isle of Malta. Costs of Federal program since 1934–35 to control and eradicate this disease have been over $218,000,000.

*Cattle fever tick.*—Cattle fever plagued Southern States for many years. The tick has been eradicated from the United States. Records of cost of this disease not readily available; however, the program to eradicate ticks lasted many years

and it is estimated that it cost the Federal, State, and county governments many millions of dollars.

*Asiatic Newcastle.*—An outbreak of this severe poultry disease in the United States occurred in 1950 in California introduced by a shipment of pheasants, quail, ducks, and partridges from China. Although there is a form of Newcastle disease prevalent in this country, this was the first outbreak caused by the Asiatic strain of the virus which is much more severe. The disease was quickly detected, infected and exposed birds destroyed, and infected premises cleaned and disinfected. Fast action by the Department prevented further spread of the disease. The cost to the Federal and State Governments of eradicating this small outbreak approximately $27,000.

Dr. CLARKSON. We have some pictures here that illustrate some of the problems. This is a picture of some of the zoo animals that come in, two zebras and a giraffe. All of them are required to go in quarantine at Clifton. A giraffe which comes from countries where foot-and-mouth disease or rinderpest exists has to go to an approved zoo and can go nowhere else during its lifetime in this country.

This picture shows some of the materials that were picked up on one of the ships coming in from Hawaii. The inspectors have finished their work with the passengers and in the ship, and this is in the ship's galley where they are looking through these apples, citrus fruits, papaya and mangoes to see if they are infested.

Mr. WHITTEN. Since that picture won't be in the record, could you estimate the number of items on one ship?

Dr. CLARKSON. It looks to me as though there are about 10 items and about 50 pounds.

Mr. WHITTEN. When you say 10 items, 10 different items, but how many individual? It's a rough estimate so the record will show it.

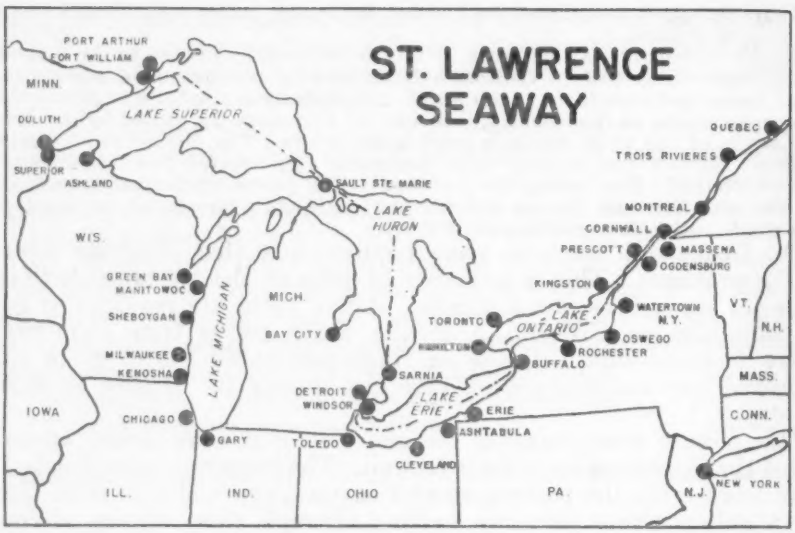
Dr. CLARNSON. About 75.

This picture on the left shows a bag of edible snails brought in by one passenger for edible purposes. It is a variety of snail that has potentials for economic damage and which does not exist in this country, and so it is prohibited.

QUARANTINE PROBLEMS FROM OPENING OF ST. LAWRENCE SEAWAY

This is merely to draw attention of the committee to one of the more urgent problems of the current year. The opening of the St. Lawrence Seaway has invited a great increase of foreign commerce into the Great Lakes, and a great interest in providing additional ports and additional facilities at existing ports. Heretofore, we have been able to take care of our quarantine work along all of this area with very little manpower because most of the imports were from Canada, and the disease and pest situation in Canada is not much different from what it is in the United States. Now it is necessary to man these ports with additional personnel. This plus the fact that additional crossings are being put into operation on the Mexican border, and also the increases in ship and airplane entries into the United States is the reason for the budget request of $504,600.

(The chart used by Dr. Clarkson follows:)




Mr. WHITTEN. How many ports are involved there, how many locations, how many personnel?

Dr. CLARKSON. Along the Great Lakes, we really don't know just how many it will ultimately take. We are anticipating that this will take about 20 men during this summer season. Whether that will be enough or whether it will be too many, or just how long we have to have them there, we will have to learn from experience.

Mr. WHITTEN. In a situation like that where you have a heavy load during the summer season and perhaps none during the other parts of the year, is there any way you can assign personnel to the places where they are needed?

Dr. CLARKSON. Yes, sir; we plan to be more restrictive in giving annual leave. Federal employees are entitled to a certain amount of annual leave and each time a person stationed here at Buffalo, for example, goes on leave, he must be replaced and a relief man in his place. We are going to make an effort to get the leave worked off during the slack season for these people up here and also to assign them to other areas where the reverse may be the case, where the heavy load may be during the wintertime.

### LIMITATION ON NUMBER OF PORTS OF ENTRY

Mr. ANDERSEN. Doctor, do you have the right, or does the Department have the right, to limit the number of ports of entry for a specific product?

Dr. CLARKSON. We do have the right for cargo shipments, and with respect to livestock particularly, we restrict that very closely. With regard to incidental inspections of ships and the passenger baggage, however, we follow Customs; wherever Customs goes we must go along.

Mr. ANDERSEN. Now in the case of livestock, you can say, for example, that they could not take them off the boat at Gary, could you not?

Dr. CLARKSON. Yes, sir.

Mr. ANDERSEN. They would have to go to Chicago?

Dr. CLARKSON. We have permitted no importations of livestock up this waterway except from Canada up to now.

During the past year, we found a ship that docked at Cleveland infested with khapra beetles. That caused a great deal of worry for all the grain storage area in this part of the country.

Mr. WHITTEN. To care for people under circumstances like that, what would you do?

Dr. CLARKSON. It was rather extensively spread throughout the ship and it was required that the ship and all its affected cargo be fumigated, which cost the shipowner and the cargo owner several thousands of dollars. I don't have the figure before me.

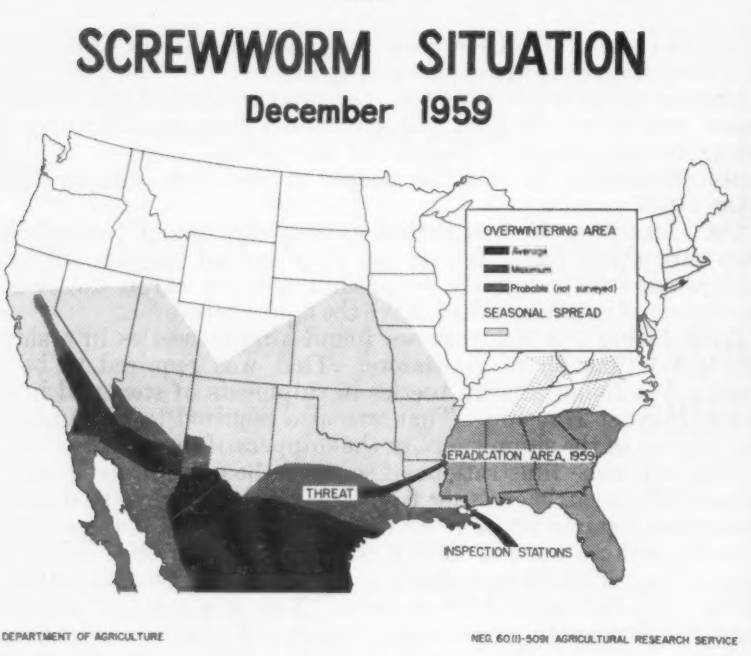
Also during the last year we found khapra beetles in a shipment of canned tunafish at Baltimore. That was required to be fumigated. We found khapra beetles in shipments of steel and imported automobiles at Houston. That was also required to be fumigated at the expense of the shipowners, or the shippers of the cargo.

Here are some illustrations of some of the quarantine work. This picture shows cattle crossing from Mexico that have to be dipped as a precaution against cattle fever ticks. This picture shows a car being cleaned because it was found to have soil infested with golden nematodes. This picture shows a crate, about 30 feet long, that is infested with the small African snail. This is a snail of considerable potential damage to crops in this country. It does not exist here. In its native habitat in Africa it has been found in concentrations as high as over 500 per square foot. This picture shows an infestation of khapra beetles on the sides of a burlap bag of rice. These show the need for an inspection of the ship, as well as a specific inspection of cargo.

DECREASE ON SCREWWORM ERADICATION

The budget estimate carries a proposed decrease in the funds for cooperation with States in the southeast for the eradication of screwworm in that area. The program has been, we hope, very successful. We have not found any screwworms since last June, and then there was only one infestation in central Florida. The operation, insofar as the production and distribution of irradiated screwworm flies is concerned, has been closed down and placed on a standby basis. We have the colony intact at Kerrville, Tex. Meanwhile, we are carrying out an inspection with the cooperation of livestock people, county agents, State officials, and distributors of drugs and supply materials for livestock people throughout all this area. This will be continued throughout this year to determine whether or not there may have been some survival of the screwworm in this area.

(The chart used by Dr. Clarkson follows:)




Dr. CLARKSON. Also we are maintaining a series of quarantine stations along this line along the western border of Mississippi to inspect shipments of livestock coming from west to east. When they come across they are inspected. If there is any evidence of screwworm infestation, they must be held and treated. Those that are coming as feeders and stockers are treated at the inspection point with an insecticide which will kill any screwworm infestation that may exist on them. Those which are going for immediate slaughter or for dairy purposes are allowed to go on. The State official is notified of the destination and time of arrival, so that the animals can be checked on arrival to see whether some infestation which was undetectable at the inspection point might have got by.

This effort is one which must be continued indefinitely as long as screwworms continue to exist in the area to the west.

SCREWWORM SURVEY IN SOUTHWEST

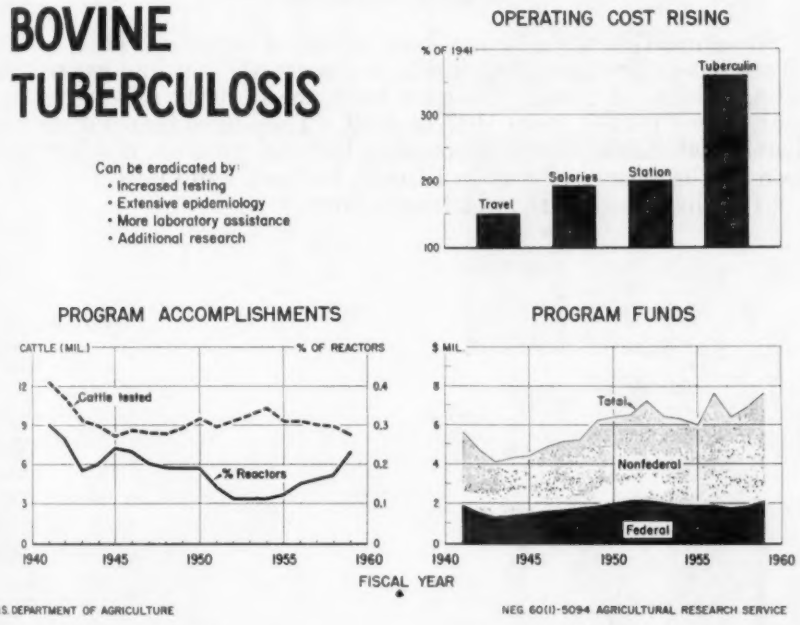
You will recall that the Department made a survey of the Southwest and of northern Mexico last year in cooperation with the States and with the Mexican Government in an effort to find whether there might be a natural barrier cutting off the movement of the fly from south to north, so as to determine whether, or not an eradication program in that area might be feasible.

It was not possible to find such a barrier. This year, we are working with the people in Texas to try to spot more definitively the exact area of overwintering and the paths of spread northward during the summer season, so as to try to cut down on the losses.

BOVINE TUBERCULOSIS

I want to just say a word about tuberculosis of cattle. The eradication program has been going on for a long time. It has been successful in reducing the incidence of the disease to a very low level. However, as was mentioned last year, there has been a small upturn in the numbers of diseased animals found, and we have been putting a great deal of effort into trying to stop this trend and to move it downward again.

(The chart used by Dr. Clarkson follows:)




Dr. CLARKSON. In our opinion, there is no alternative in this program but to go ahead to final eradication of tuberculosis of cattle in this country. This is one of the really important factors in the decrease in tuberculosis of man in this country, and it is a very important factor in the economic values of dairy and beef herds. The costs of the eradication program have gone up, as is indicated here. The States and the Federal Government are putting a substantial amount of money into this program. We have not hesitated and would not hesitate this year, under the authority given by the Congress, to use funds from other purposes if we should get a bad outbreak of tuberculosis in any area.

Mr. SANTANGELO. Dr. Clarkson, can you tell us why the incidence of tuberculosis has risen in Wisconsin and Michigan which has been set forth in the justifications?

Dr. CLARKSON. The areas where the disease was most prevalent, throughout all the years in which records have been kept, are the large dairy areas of the Midwest, the Northeast, and the west coast, where cattle are held under the greatest concentration. Two years ago, it was found in both Wisconsin and Michigan that there were several centers

of infection in the large dairy centers. With that finding, both the States and our own people put a great deal of extra effort into a trace-back of all shipments and movements of cattle from herd to herd, and a testing of all herds thought to be affected.

The sharp rise, of course, derived from the fact that there was tuberculosis there. It also derives from the fact that we put a great deal of emphasis on the work in those areas, and we are finding and eliminating the disease. We are not yet on top of the problem but I think that we are about to see the trend start downward again.

### SCRAPIE OF SHEEP

Some mention already has been made of scrapie. This, as Dr. Shaw has pointed out, is an insidious disease of sheep and experimentally, at least, of goats. We have had some 78 flocks affected during the 12-year period, from 1947 to 1959. They have been rather well distributed throughout the country, but the greatest number have been on the west coast and in Illinois, Indiana, and Ohio.

(The chart used by Dr. Clarkson follows:)

SCRAPIE: infected flocks reported
1947-59*
78 Flocks
21 States
*Fiscal Year
1960*
7 Flocks
4 States
*July-January
RESEARCH IN GREAT BRITAIN
•ARC field stations
Compton, England
•Moredum Institute
Edinburgh, Scotland
Experimental Sheep
Isolation Facilities
Experimental Goats
U.S. DEPARTMENT OF AGRICULTURE NEG. 60(1)-5092
AGRICULTURAL RESEARCH SERVICE

Dr. CLARKSON. During this fiscal year we have had 7 flocks infected in four States—California, Wyoming, Illinois, and Mississippi. Each of these has been destroyed. The program is to locate the infection, isolate the flocks, destroy infected and exposed animals, and then to clean up. We then maintain surveillance over all flocks that have been in contact with these flocks, through shipments of sheep or otherwise, and we maintain that for nearly 4 years in order to see whether there may be some exposed animal that was not found.

Mr. WHITTEN. In that connection, you have mentioned here off the record, and I think it might as well be on the record, the important point that the movement of such flocks throughout the country tends to spread disease and because of the long incubation period, it is difficult to trace it back. That, in itself, leads to condemnation of breeding flocks which makes it much more of a financial loss than it otherwise might be.

Dr. CLARKSON. Yes, sir, it does. We often find that the spread into these individual flocks has come through moving a ram or several ewes from an infected breeding flock into other areas of the country.

Mr. WHITTEN. And the ram and those ewes that were bought for that purpose frequently sell at increased amounts as compared to normal value.

Dr. CLARKSON. Yes, sir; that's right, and that adds to the difficulty. However, we find that the people in the sheep business generally do support the program. We have had it reviewed either by a team of scientists or by a combination of scientists and State officials and industry people each year since its inception. This year, as Dr. Shaw has already mentioned, we brought the two experts on this disease from Great Britain who have been working on it for some 20 years at their research stations. They spent about 2 months in this country at public meetings in the Midwest and in the Far West and in consultation with our scientists here. We think that accomplished two things: it tended to give everyone who is interested the latest scientific information, and it gave the experts who are conducting research a more intimate knowledge of our problems.

These pictures are of the experimental setup at Compton, England. There is a somewhat similar, although smaller setup at Moredun in Scotland. At Compton, about 2,000 sheep are used on scrapie research. They have facilities that would cost us well over $1 million to duplicate. We see no reason why we shouldn't work with them and send our people over there. We have an expert over there working with them, rather than setting up a new research center in this country.

That has been one of the difficult decisions to make.

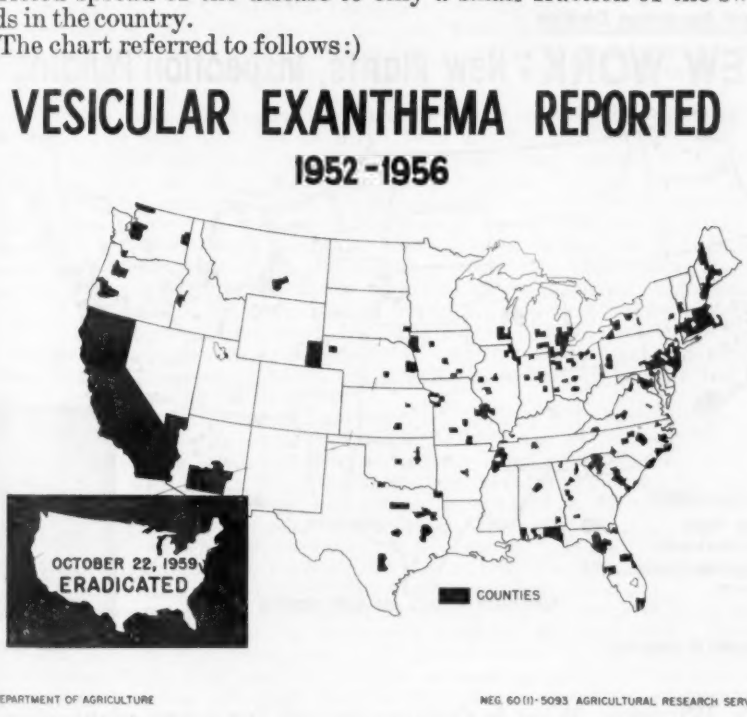
Mr. WHITTEN. I wish to commend you there and I think the American people will too. I know that you personally are always trying to approach these problems with that in mind. It is good that we can save on these large investments, and particularly something that's fairly new to us. It is equally as valuable to tie in with a group that has that long background of experience and knowledge.

Dr. CLARKSON. It would have taken us 5 years to get background experience in new research assignments here, in my opinion.

VESICULAR EXANTHEMA OF SWINE

We just want to brag a little bit. This is the chart on vesicular exanthema that spread across the country in 1952. With the very active support of agriculture and the livestock and meat industry, with the authority given for action as well as for expenditures by the Congress, and with very good cooperative relationships in all of the States, it has been possible to eradicate this disease. The total expenditure of State and Federal funds during this period of years was around $18 million. The estimated losses in just the first year were $22 million, even though the inspection and quarantine work had restricted spread of the disease to only a small fraction of the swine herds in the country.

(The chart referred to follows:)




EMERGENCY AUTHORITY FOR CONTROL OF DISEASES OF ANIMALS AND POULTRY

Dr. CLARKSON. I'd like to say in that connection, Mr. Chairman, that the financing for that work was under the item "Diseases of animals and poultry," which is emergency financing authority. Under that item we contemplate no expenditures this year or next, but we look upon that as being one of the most useful items in our appropriation bill, to be used in times of emergency only, such as was the case with vericular exanthema eradication.

MEAT INSPECTION

Now going to meat inspection, I would like to make the point that the increase in workload continues at about the same rate that we have discussed in previous years.

This chart shows without any relationship to the size of individual plants in the blue triangles, the new plants that have been brought under inspection during the past 2 years, 189 of them. The chart also shows with the red dots those plants for which applications are pending and on which the specifications and drawings have been approved. We do not know in any individual case how rapidly it may come along to qualify for inspection, but with some 223 of them pending, we would anticipate that somewhere between 40 and 50 of them will come in for inspection during the coming year.

(The chart referred to follows:)

Mr. WHITTEN. What is the average cost for a new plant, if additional personnel were provided, based on the average that you have now? In the first place, I guess we would presume that most of the plants just coming in are relatively small.

Dr. CLARKSON. Yes, sir.

Mr. WHITTEN. As related to the ones that have been in through the years.

Dr. CLARKSON. A new plant may take the part-time service of one inspector or it may take the full-time services of five or six inspectors. On the average, the new plants take just slightly less than one inspector. Now along with new plants, of course, there is a constant revision of old plants being put into better shape. Sometimes they take less inspectors, sometimes they take more if they enlarge the plant for more operations.

Mr. Chairman, if it were possible to do so, I would like to suggest that pages 28 through 32 and 77 to 112, and page 145 may be placed in the record at this point.

Mr. WHITTEN. I'd be glad to have them placed in the record at this point.

(The information referred to follows:)

PLANT AND ANIMAL DISEASE AND PEST CONTROL

(2) A net decrease of $1,331,600 is proposed consisting of—

(*a*) Increase of $100,700 under the project, "Plant pest control," to carry out on a full-year basis the Department's responsibilities under the amendment to the Federal Insecticide, Fungicide, and Rodenticide Act (Public Law 86–139), approved August 7, 1959.

*Need for increase.*—On August 7, 1959, the Federal Insecticide, Fungicide, and Rodenticide Act was amended to make four additional "economic poisons," nematocides, plant regulators, defoliants and desiccants, subject to the same regulatory controls on labeling and marketing as applied to insecticides, fungicides, rodenticides, and herbicides. It also placed these additional items under the pesticides chemical amendment to the Federal Food, Drug, and Cosmetic Act (Public Law 518, 83d Cong.) insofar as residues in or on raw agricultural commodities may be involved. The legislation required the Department to begin registration immediately of the newly regulated products placed on the market subsequent to August 7, 1959, and also of any such products introduced into commercial markets between January 1, 1958, and August 7, 1959, if their use results in residues. All newly regulated products, including those marketed prior to January 1, 1958, must be registered prior to March 5, 1961, or such earlier date as may be determined by the Secretary.

To carry out the enforcement provisions of the act, it is necessary to take samples, make analyses to insure that the ingredients are of the kind and in the amount stated on the label, and conduct extensive tests to determine that the products can be used safely and effectively when label directions are followed.

More than 4,000 products in the new categories are now on the market and it is expected that about 1,200 more will be introduced each year.

Experience has shown that for each new product there is an average of three registrations. It is essential that registration activities be handled promptly to meet the requirements of the law and to avoid disruption in the trade.

With the approval of the amendment on August 7, 1959, work relating to the additional regulatory activities in fiscal year 1960 was initiated with a transfer of $250,000 from the screwworm eradication project under "Animal disease control and eradication" since progress under that eradication program has been more rapid than anticipated. To meet the costs for a full year in 1961, an increase of $100,700 would be needed.

(*b*) Increase of $504,600 under the project, "Plant quarantine" for inspection services needed to protect the United States against the constant threat of entry of foreign pests due to the rapid increase in foreign travel and commerce.

*Problem and need for increase.*—Foreign traffic has increased to the point where it is no longer possible to provide adequate plant quarantine coverage with the available inspection force. Additional funds are needed for increased inspection service because the continued expansion in both commercial and personal travel has increased the threat of foreign pests being introduced into the United States. Many of the existing ports of entry are understaffed and plant quarantine coverage is urgently needed at several new ports where such services cannot now be provided. Expanded travel and commerce has forced the scheduled opening of these new ports of entry, some during the current fiscal year. It is impossible to cover them without reducing inspection staffs at other points below minimum needs. Adequate inspection coverage of traffic into the United States is fundamental to the protection of American agriculture.

The increase in the inspection workload and the associated increase in interceptions of new pests brought to our borders is shown in the following table:

| | Fiscal year 1958 | Fiscal year 1959 | Fiscal year 1960, estimated | Fiscal year 1961, estimated |
|---|---|---|---|---|
| Inspections: | | | | |
| Airplanes inspected | 121,231 | 133,723 | 147,500 | 155,000 |
| Ships | 55,348 | 58,995 | 62,900 | 64,000 |
| Vehicles from Mexico | 19,434,535 | 21,119,747 | 22,951,000 | 25,000,000 |
| Pieces baggage inspected | 17,277,049 | 21,331,180 | 26,911,700 | 32,250,000 |
| Interceptions: | | | | |
| Plant material | 311,391 | 319,713 | 328,300 | 335,000 |
| Plant pests | 18,198 | 25,296 | 35,000 | 43,000 |

The opening of the St. Lawrence Seaway is resulting in a material increase in foreign shipping through those ports with the concomitant danger of plant pest entry directly into major agricultural areas. Statehood for Alaska and Hawaii has added new impetus to traffic between the continental United States and the new States. Commercial and military overseas plane flights using Alaskan and Hawaiian terminals are steadily rising. In Alaska, there is further danger of animal disease entry threatening its abundant wild game as well as its domestic livestock. The upsurge in traffic from Mexico has resulted in the opening of two new ports of entry at the Mexican border and the opening of additional ports of entry is pending. The Bureau of Customs recently inaugurated in Nassau, Bahama Islands, a practice of inspecting aircraft and baggage prior to departure for the United States. It was necessary also to establish preflight plant quarantine clearance there since agricultural quarantine clearance is required simultaneously with Customs clearance.

The tourist traffic is expected to hit new peaks. The Bureau of Customs has advised that it will not be possible to maintain its present level of baggage inspection for agricultural quarantine purposes in fiscal year 1961 unless additional inspectors can be provided.

Plan of work.—On the basis of present and foreseeable workload and traffic trends, it is proposed to station additional quarantine inspectors at the following ports: Nogales, Ariz.; Calexico and San Ysidro, Calif.; Dover, Del.; Jacksonville, Miami, Patrick Air Force Base, Tampa, and West Palm Beach, Fla.; Honolulu, Hawaii; Chicago, Ill.; New Orleans, La.; Detroit, Mich.; Duluth, Minn.; New York, N.Y.; Wilmington, N.C.; Cleveland, Ohio; Philadelphia, Pa.; Brownsville, El Paso, Cordova Island (El Paso), Hidalgo, and San Antonio, Tex.; Seattle, Wash.; Milwaukee, Wis.; San Juan, P.R.; and to initiate inspection services at a new port of entry currently expected to be opened at Anzalduas Dam, Tex.

The following measures would also be taken to supplement the plant quarantine protection that can be provided by port-of-entry inspection:

(1) Additional steps to acquaint the public with agricultural quarantine restrictions. The progress that has been made in this field has been encouraging and added emphasis will be placed on using all available outlets to get this subject before the public.

(2) Close cooperative relationships will be maintained between the Bureau of Customs, Immigration and Naturalization Service, U.S. Public Health Service, and the animal and plant inspection and quarantine services of the Agricultural Research Service in cordinating inspection to achieve maximum coverage at ports of entry.

(3) Close working relationships will be maintained with Canadian officials on mutual problems, particularly those resulting from the opening of the St. Lawrence Seaway.

(4) Opportunities will be taken to work with quarantine officials of other countries, especially those of Mexico and Central America, for mutual protection against the establishment of foreign pests on the North American Continent.

The increase would provide for the employment of approximately 48 plant quarantine inspectors at the 26 ports listed above, and for reimbursement to the Bureau of Customs of approximately $80,000 for providing additional baggage inspection for agricultural quarantine purposes.

(*c*) Increase of $201,400 under the project "Animal inspection and quarantine" for that portion of the cost of staffing and operating the National Animal Disease Laboratory, Ames, Iowa, in 1961 which is applicable to the animal inspection and quarantine services.

NOTE.—The justification for the increase is included under item (1) (*c*) above.

(*d*) Decrease of $2,100,000 under the project "Animal disease control and eradication" consisting of—

1. *Decrease of $1,250,000 in the brucellosis eradication program.*—In fiscal year 1955 an accelerated program was undertaken under section 204(e), title II of the Act of August 28, 1954, which authorized annual transfers of additional funds from Commodity Credit Corporation to finance such a program. Under this accelerated program, the Federal portion of which is now financed entirely under this appropriation, rapid strides have been made. In view of this progress, in fiscal year 1960 Federal support of the program was decreased by $3,750,000. A further reduction of $1,250,000 is proposed for fiscal year 1961. The proposed Federal funds available for this program in 1961 would be $15,477,000.

The progress in achieving modified-certified brucellosis status and the funds obligated in recent years for the program are shown in the following tabulation:

| Fiscal year | States and Territories certified annually | Counties certified annually | Obligations (in thousands) | |
|---|---|---|---|---|
| | | | Federal | State |
| Prior to 1954 | 3 | 312 | | |
| 1954 | | 22 | $3,677 | $12,204 |
| 1955 | | 45 | 15,333 | 11,234 |
| 1956 | 2 | 121 | 20,186 | 15,730 |
| 1957 | 2 | 235 | 21,000 | 15,842 |
| 1958 | 9 | 482 | 22,252 | 16,706 |
| 1959 | 5 | 436 | 20,163 | 17,065 |
| 1960 (estimated) | 6 | 304 | 16,637 | 14,958 |

As of November 30, 1959, a total of 1,772 counties in 48 States had attained modified-certified brucellosis area status; in 23 of these States and Puerto Rico and the Virgin Islands all of the counties had achieved such status. The certified counties represent more than half of the counties in the United States and territories, and the total compares with 3 complete States and 334 counties in 17 States similarly designated at the end of fiscal year 1954. To achieve this certification status, cattle and herd infection rates must be reduced to not more than 1 percent and 5 percent, respectively, within the county.

2. *Decrease of $850,000 in the screwworm-eradication program.*—Based on the exceptional progress of the screwworm-eradication program and anticipating that no screwworm flies will be found in Florida, Alabama, and Georgia during fiscal year 1960, a decrease is proposed for this program in the amount of $850,000.

The Second Supplemental Appropriation Act of 1958 provided $1,600,000 for initiating the Federal-State cooperative program to eradicate screwworms in the Southeastern States and to prevent the interstate movement of infested livestock into the areas freed of screwworms. In fiscal year 1959 these funds were increased by $900,000, making a total of $2,500,000 available for the program. In fiscal years 1959 and 1960, an eradication program has been underway which includes the production and dispersal of approximately 50 million sterile screwworm flies per week in Florida and parts of Georgia and Alabama.

After fiscal year 1960, it will be necessary to continue field inspections to insure prompt detection of incipient outbreaks which may occur throughout the Southeastern States. It will also be necessary to strengthen inspection along the borders of the area from which the screwworm has been eradicated to prevent reintroduction from the heavily infested areas that are located west of the current eradication area.

Because progress in the program in fiscal year 1960 has been more rapid than anticipated, $250,000 was transferred to the "Plant-pest control" project to permit the Department to initiate work authorized by an amendment to the Federal Insecticide, Fungicide, and Rodenticide Act, approved on August 7, 1959. With the proposed reduction of $850,000, a balance of $1,400,000 will remain available in 1961 for field inspections and for maintaining constant vigilance at animal inspection stations along the eastern border of Louisiana and Arkansas and at others points to inspect, and treat when necessary, susceptible animals moving from screwworm-infested areas into the screwworm-free area of the Southeast. It must be possible to take immediate measures to identify and eliminate, through production and release of sterile flies, any incipient infestations or isolated outbreaks which may occur in the screwworm-free area. Facilities for sterile fly production and release must be maintained to provide for resumption of eradication activities should incipient outbreaks occur.

(*c*) Decrease of $38,300 due to the anticipated provision in the direct appropriation to General Services Administration for certain leasing costs now paid from this appropriation.

NOTE.—It is proposed that the decrease would be distributed by projects as follows:

| | |
|---|---|
| Plant-pest control | −$16,200 |
| Plant quarantine | −4,800 |
| Animal-disease control and eradication | −17,300 |
| Total | −38,300 |

The justification for this decrease is included under item (1) (b).

## PLANT DISEASE AND PEST CONTROL

### CURRENT ACTIVITIES

The work covers (*a*) insect and plant disease control, designed to protect agriculture from destructive insects, nematodes, and plant diseases, including inspection to detect and appraise infestations, certification of regulated articles, supervision of treatments required by plant quarantines, application of pesticides, and use of other methods of combating infestations; (*b*) protective measures, primarily inspections at ports of entry to prevent the introduction from abroad of insect pests, nematodes, and plant diseases, and certification of the absence of plant pests on plants and plant products for export; and (*c*) administration and enforcement of the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, to prevent the sale of mislabeled and inadequately labeled economic poisons, and to safeguard farmers and other users from injury to crops, livestock, or themselves, and from loss resulting from deceptive, careless, or fraudulent marketing practices.

### SELECTED EXAMPLES OF RECENT PROGRESS

*Plant pest control*

1. *Barberry eradication.*—Over 3⅓ million barberry bushes were destroyed during the year ended June 30, 1959. They were found on 2,801 properties distributed over some 7,532 square miles in 19 States. Of this area, 5,862 square miles were placed on maintenance and will require only sufficient work on infested sites to maintain the barberry-free condition. The area requiring further eradication work is now reduced to approximately 49,752 square miles. (See figure 7.)

Following inspection under the provisions of Federal Quarantine No. 38, certificates of inspection permitting interstate shipment of barberry and mahonia plants were issued to 407 nurseries and 71 dealers.

2. *Survey and detection operations.*—An intensified nationwide plant pest detection program was launched during the year to provide for prompt discovery of insect pests not known to occur in the United States but which exist in large numbers in foreign countries and are capable of causing serious crop losses in this country. Major emphasis is directed at introduced pests now limited to specific areas, but which may spread to other parts of the country. Interested State and Federal agencies concerned with agriculture, public health, and national defense are lending their support. Early detection can lead directly to complete eradication at a comparatively low cost as in the recent case of the Mediterranean fruit fly.

In cooperation with agricultural agencies in all the States, the "Cooperative Economic Insect Report" is published and mailed weekly to approximately 3,000 interested workers in agriculture and related industries. Special survey reports on the status of major insect pests (such as grasshoppers, fire ants, European corn borers, and those on cotton) are widely used by growers and industry.

3. *European chafer control.*—Acreage infested with the European chafer increased during the year by 54,960, to a total of 697,084 acres. An important infestation was reported in Brooklyn, N.Y., in March 1959. Followup surveys showed the pest established on more than 8,800 acres in an area of 14 square miles in Kings County. The chafer was also collected on Staten Island, Bedloe's Island, and Governors Island. These finds constitute the only major extension of the known infested area. New York State has extended its quarantine to include most of this area. Controls to prevent spread were applied to 63 acres.

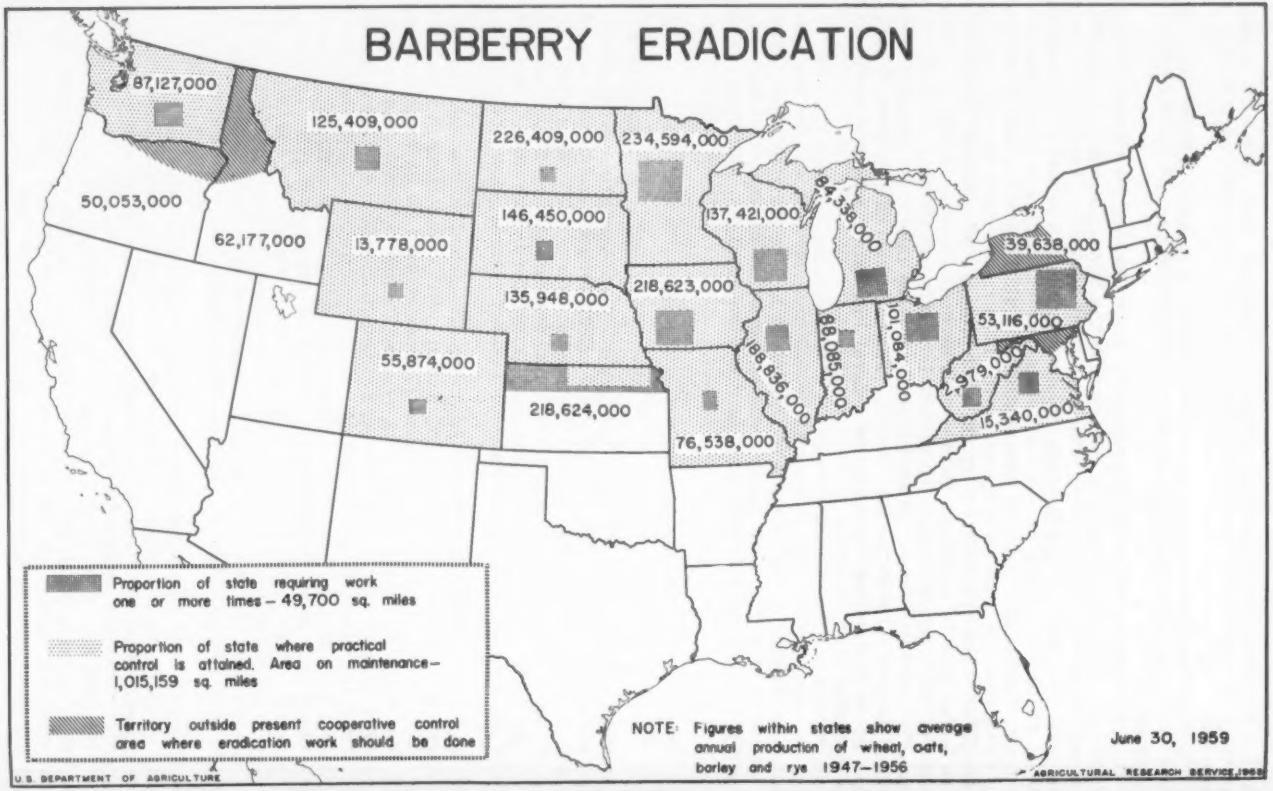
along parkways in Kings County. Chafers were found in Connecticut, where infestations had previously existed. One specimen was trapped in West Virginia. Figure 8 shows the areas of known infestation.

Field studies were continued to determine the value of the blacklight trap as a tool for adult chafer surveys. This development would overcome a difficult problem in the chafer program. The trap will be widely used in the 1960 surveys.

Chemical controls were applied to 628 acres of isolated infestations. Products valued at more than $28 million were certified for movements from regulated areas.

4. *Fruit insect control and eradication programs.*—*a.* No citrus blackfly infestations have been found in southern Texas since the summer of 1956, although intensive surveys have been conducted annually. Cooperative surveys in fiscal year 1959 in the Republic of Mexico failed to reveal any blackflies in Baja, California, south of the California border. Surveys from Sonora east through Tamaulipas included examination of 1,413,172 trees on 26,985 properties and revealed 270 infested properties with 1,554 trees. (See fig. 9.) An important phase of the cooperative program is the prompt eradication of infestations in the buffer zone in northeast Mexico. To accomplish this the Mexican Department of Agriculture applied chemicals 1 or more times to a total of 153,741 trees in the buffer zone. Most infestations were light. No infestations were closer than 60 miles to the U.S. border. The continued effectiveness of parasites was noted throughout the areas of general infestation where parasite control is practiced.

FIGURE 7


BARBERRY ERADICATION
87,127,000
125,409,000
226,409,000
234,594,000
50,053,000
62,177,000
13,778,000
146,450,000
137,421,000
84,336,000
39,638,000
218,623,000
135,948,000
53,116,000
101,084,000
88,085,000
89,836,000
55,874,000
218,624,000
2,979,000
15,340,000
76,538,000
Proportion of state requiring work one or more times – 49,700 sq. miles
Proportion of state where practical control is attained. Area on maintenance – 1,015,159 sq. miles
Territory outside present cooperative control area where eradication work should be done
NOTE: Figures within states show average annual production of wheat, oats, barley and rye 1947–1956
June 30, 1959
U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE, 1959

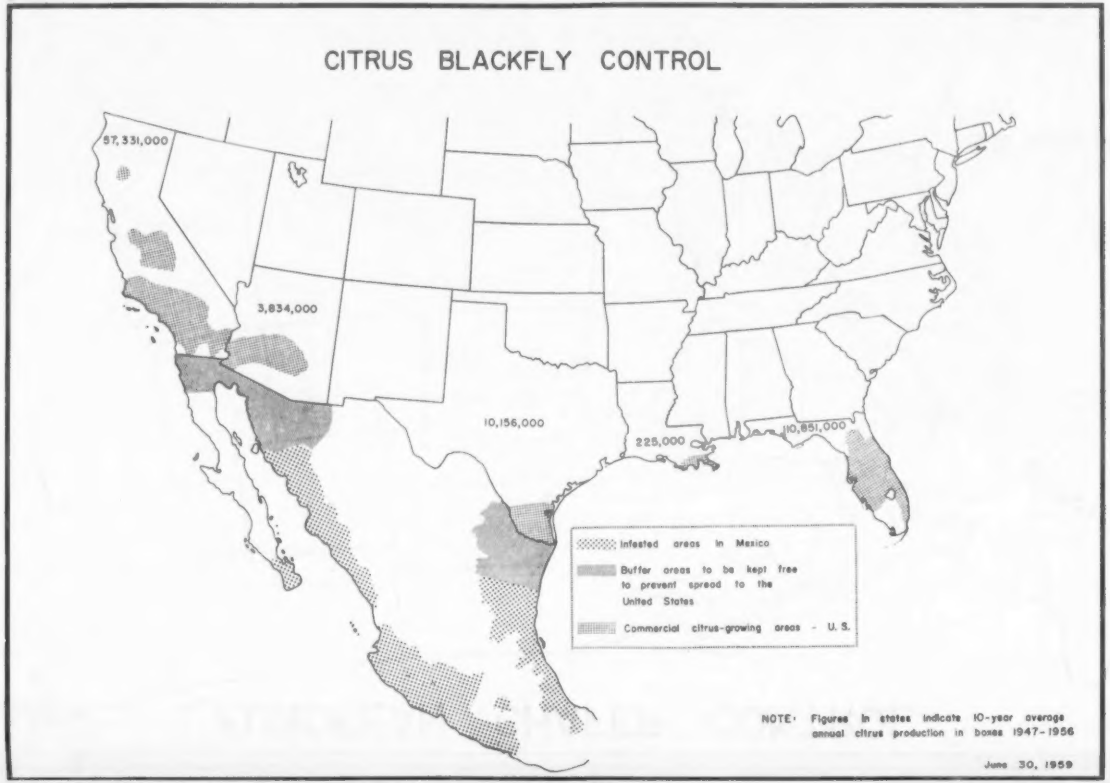
U.S. DEPARTMENT OF AGRICULTURE

barley and rye 1947–1956

AGRICULTURAL RESEARCH SERVICE, 1958

FIGURE 8

FIGURE 9


CITRUS BLACKFLY CONTROL
97,331,000
3,834,000
10,156,000
225,000
10,851,000
Infested areas in Mexico
Buffer areas to be kept free to prevent spread to the United States
Commercial citrus-growing areas - U. S.
NOTE: Figures in states indicate 10-year average annual citrus production in boxes 1947-1956
June 30, 1959

*b.* No Hall scale was found in inspections throughout the California area in 1959. The last infestation was found in June 1956. If no live insects are found during the next 12 months, it would appear that eradication has been accomplished.

*c.* Large-scale surveys to detect possible reintroduction of the Mediterranean fruitfly following the successful eradication in 1957 and 1958 fiscal years, were conducted during the 1959 fiscal year. Trapping was conducted throughout Florida and other Southern States. Approximately 8,000 traps are in operation in susceptible host crop areas. Combinations of baits are now employed in order to assure detection of other fruitflies of economic importance. Several hundred traps were operated in the southern parts of Alabama, Georgia, Louisiana, Mississippi, and Texas. The trapping program will be continued during fiscal year 1960.

*d.* The Mexican fruitfly eradication program along the international boundary between California and Baja California and Arizona and Sonora was continued throughout 1959. As a result one adult fly was captured at Tijuana, Baja, California, on May 11, 1959, the first taken since October 20, 1957. Controls were applied immediately. The last fly caught in California was early in July 1957. California and Mexico applied sprays to more than 440,000 plants in the protective area. Infestations were low in Texas. The first catch in that State was recorded in November 1958. Only 20 infestations were recorded during the trapping season. (See fig. 10.)

5. *Grasshopper and mormon cricket control.*—*a.* Grasshopper infestations were at low level in 1959. The 1958 cooperative control program in 11 Western States played an important part in reducing the threat of a serious outbreak of grasshoppers. Nymphal surveys completed in the spring of 1959 verified the effectiveness of the 1958 control effort which included the treating of nearly 5 million acres.

Only 600,000 acres in seven States required Federal-State attention in 1959. Because of weather unfavorable for grasshopper development in Colorado, Kansas, Nebraska, and Texas, where programs had been planned to control small infestations not included in the 1958 program, no further work was needed. The largest acreage treated was in New Mexico, with 275,346 acres, Wyoming, with approximately 225,000 acres; and Idaho, with 64,734. Smaller acreages were treated in Montana, North Dakota, South Dakota, and Utah.

*b.* Less control work was required in 1959 for mormon cricket than in 1958. About 56,000 acres of infested rangeland in four States required treatment in 1959, as compared with 74,052 acres treated in 1958. Work completed in 1959 includes 35,074 acres in Idaho, 10,384 acres in Montana, 8,542 acres in Utah, and 2,000 acres in Wyoming.

6. *Gypsy moth eradication.*—Sevin, a new insecticide with low toxicity to warmblooded animals, fish, and aquatic insects, was selected for use in the 1959 New York gypsy moth program. The Department and New York State Agriculture and conservation agencies chose Sevin from 36 insecticides tested for effectiveness against the gypsy moth. During late May and early June, 85,560 acres in Otsego and Delaware Counties were treated using 1¼ pounds of the new insecticide per acre. In addition to timbered lands, the treated area included infested farm wood lots, and hedgerows. Subsequent appraisal surveys in the area showed no gypsy moth larvae, but this new material is costly, difficult to formulate, and will need further study.

Aerial application of DDT was made on 13,949 acres in the Lansing, Mich., area in May 1959. This area involved the only known gypsy moth infestation outside of the Northeast. In the Northeast, seven States applied suppression treatments to 46,293 acres. The gypsy moth trapping program, so vital to the eradication effort, has continued on a comprehensive scale. The trapping program has been assured an ample supply of attractant from collections in foreign countries during the past 2 years. (See fig. 11.)

7. *Hoja Blanca disease of rice.*—To protect the Nation's $200 million annual rice crop, cooperative Federal-State efforts are aimed toward eradication of this destructive disease before it becomes widespread in ricegrowing areas. Eradication measures applied on the initial infection centers near Belle Glade, Fla., and Bay St. Louis, Miss., included destruction of volunteer rice in adjoining fields and application of insecticidal sprays to their environs to eliminate the leafhopper vectors. No rice was planted in these areas in 1959.

FIGURE 10

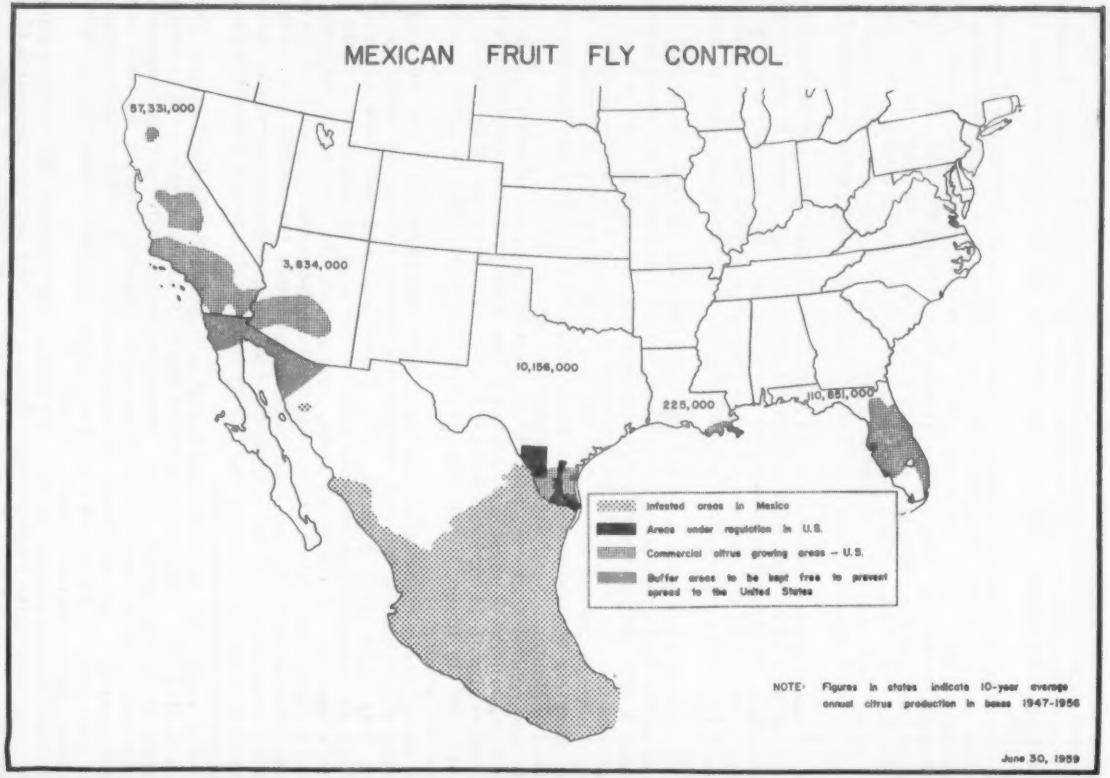
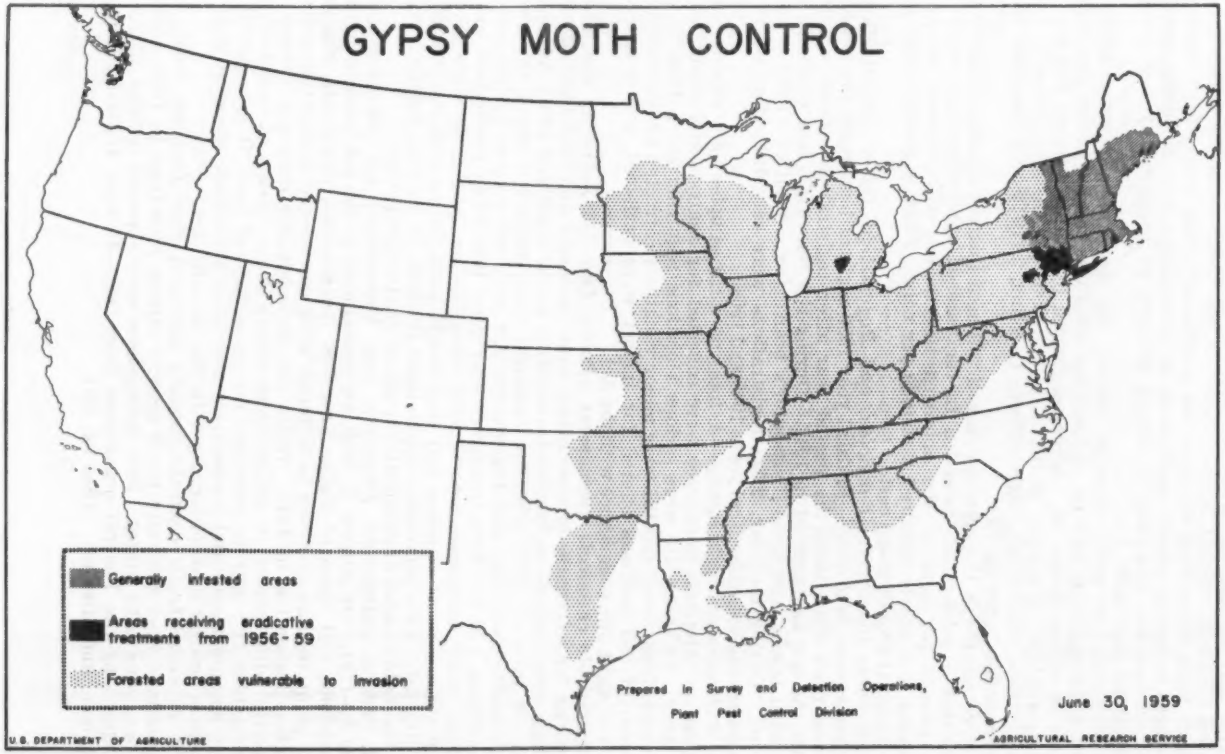

MEXICAN FRUIT FLY CONTROL
57,331,000
3,834,000
10,156,000
225,000
10,851,000
Infested areas in Mexico
Areas under regulation in U.S.
Commercial citrus growing areas – U.S.
Buffer areas to be kept free to prevent spread to the United States
NOTE: Figures in states indicate 10-year average annual citrus production in boxes 1947-1956
June 30, 1959

FIGURE 11


GYPSY MOTH CONTROL
Generally infested areas
Areas receiving eradicative treatments from 1956-59
Forested areas vulnerable to invasion
Prepared in Survey and Detection Operations, Plant Pest Control Division
June 30, 1959
U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE

Througout the year, intensive vector and disease surveys were conducted in cooperation with all the principal ricegrowing States. By late 1959, the vector and/or the disease had been found on approximately 8,000 acres in Louisiana. The entire area concerned has been under continuous insecticide treatment.

With full cooperation from the affected States, the Department joined in control efforts to prevent further spread of the vector from the known infected areas. With funds released from the contingency fund, cooperative eradication measures including timely application of insecticides are continuing, and further surveys are underway to detect as soon as possible any new infection centers that may exist.

8. *Imported fire ant.*—Acreage treated for fire ant was substantially increased during 1959. A total of 1,470,012 acres was treated in the nine infested States as of September 30. Acreages treated by States were as follows: Alabama, 419,519; Arkansas, 43,264; Florida, 206,796; Georgia, 280,482; Louisiana, 388,649; Mississippi, 69,686; North Carolina, 2,116; South Carolina, 10,136; Texas, 49,364. (See fig. 12.)

Improvements in the granular insecticide used to treat fire-ant-infested areas permitted a substantial reduction in the rate of application per acre. Now 1¼ pounds per acre of the approved insecticides will achieve eradication, whereas it formerly required 2 pounds per acre. Thus, a greater acreage can be treated at no additional cost.

9. *Federal Insecticide, Fungicide, and Rodenticide Act—a. Registration activities highest in decade.*—In fiscal year 1959 registrations under the Act hit the highest peak since 1949, the second year after registration became mandatory under the law as amended in 1947. During the year 4,876 new products, 4,237 amended labels, and 2,856 distributor's brands, or a total of 11,969 were registered. During the year, 2,545 registrations were canceled; the majority of these were registered in fiscal years 1949 and 1954.

*b. Enforcement work steady.*—A total of 1,310 samples of economic poisons shipped in interstate commerce were collected for analysis and testing during the year. Of these, 218 were serious violations requiring 193 notices of violation and 25 seizures; and 121 were minor violations corrected by correspondence. A total of 283 products offered for import were reviewed, and 9 were held until brought into compliance with the Act.

*c. Pesticide chemicals amendment (Public Law 518).*—During the year, 26 petitions for tolerances or exemptions were processed and certifications of usefulness and opinions on residue transmitted to the Food and Drug Administration. A total of 2,070 pesticide chemical uses registered under the Federal Insecticide, Fungicide, and Rodenticide Act are now covered by tolerances or exemptions. As has been true every year since 1954 when Public Law 518 was passed, many additional uses of new chemicals on food crops were accepted upon submission of evidence that they would leave no harmful residues if used as directed. This represents appreciable progress in making legally available an adequate number of chemicals for use on food or feed crops.

*d. Federal Insecticide, Fungicide, and Rodenticide Act Amended (Public Law 86–139).*—On August 7, 1959, an amendment to the act brought under its provisions, and those of Public Law 518, nematocides, desiccants, defoliants, and plant regulators which have found wide commercial application since the original legislation in 1947. While the amended law does not become fully effective with respect to all products within these classes of chemicals until March 1960 and may be extended for an additional year, it is expected that most manufacturers and formulators will begin immediate steps to have such products brought into conformity with the amended act.

10. *Japanese beetle control.*—Reports indicated that Japanese beetle adult populations were generally much heavier during 1959 than in 1958, especially in the lower Lake States. New infestations were reported outside of the area regulated by the Federal quarantine from Ohio, Illinois, Indiana, Tennessee, Michigan, and Missouri. (See fig. 13.)

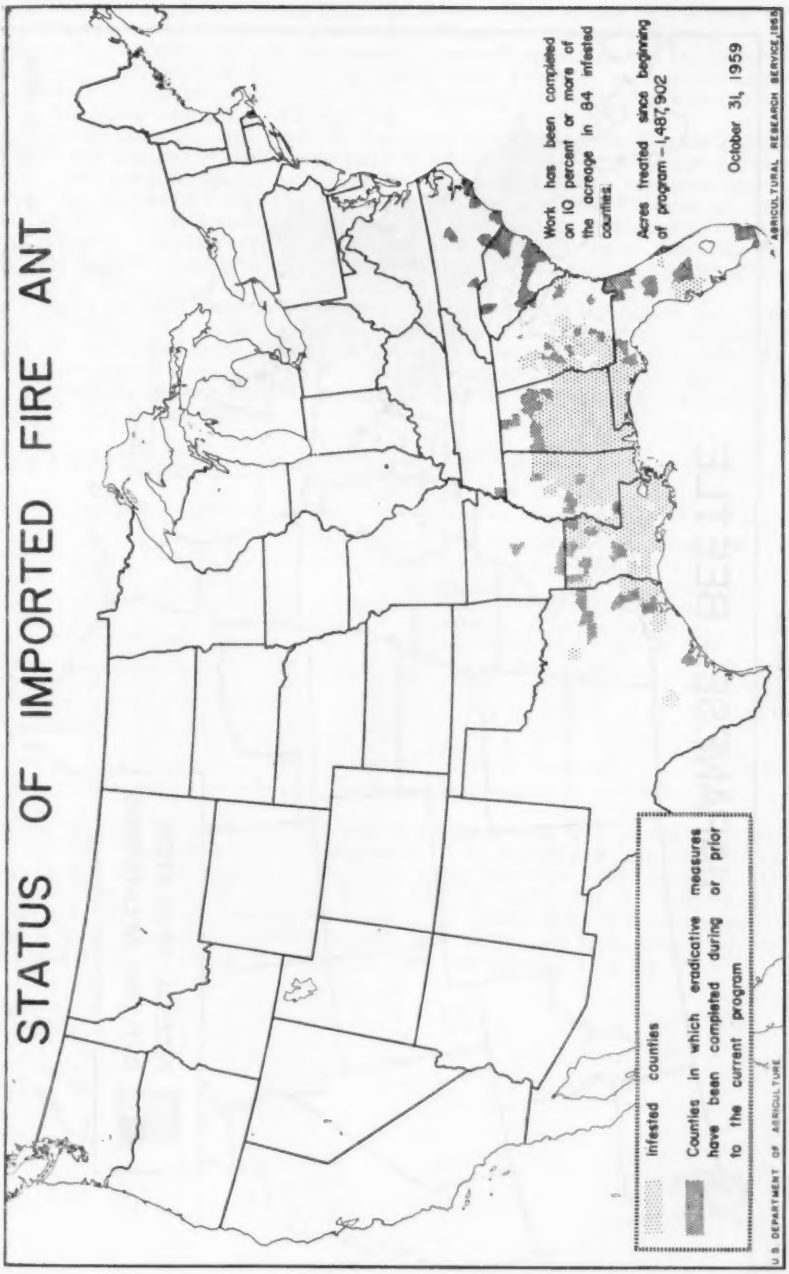
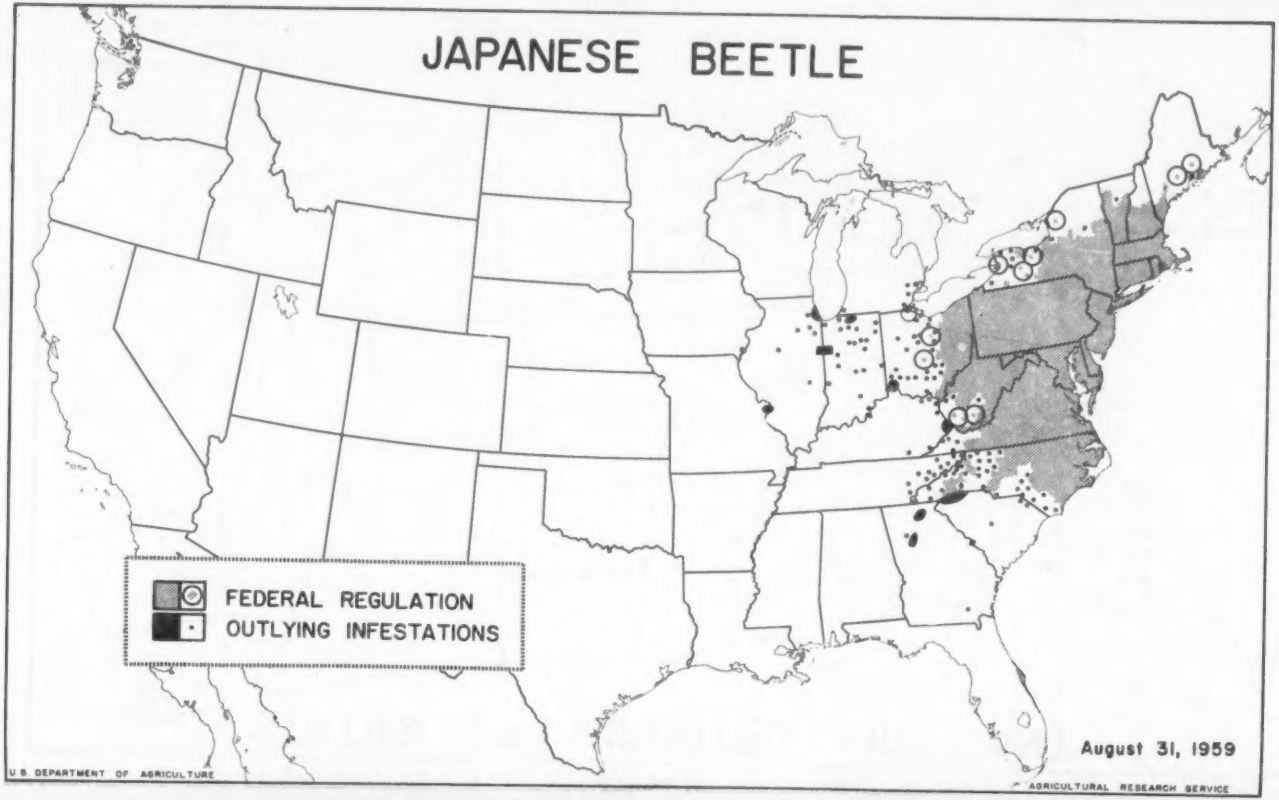

STATUS OF IMPORTED FIRE ANT
Infested counties
Counties in which eradicative measures have been completed during or prior to the current program
Work has been completed on 10 percent or more of the acreage in 84 infested counties.
Acres treated since beginning of program – 1,487,902
October 31, 1959
U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE, 1959

FIGURE 12

FIGURE 13


JAPANESE BEETLE
FEDERAL REGULATION
OUTLYING INFESTATIONS
August 31, 1959
U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE

During the year, soil treatments were applied on 26,831 acres and, in addition, 6,726 acres received suppressive foliage sprays. Major acreages treated by States were as follows: Illinois, 14,136; Tennessee, 2,215; Kentucky, 2,216; Ohio, 2,535; Georgia, 1,180; North Carolina, 3,169. Prior to the 1959 season, all known infestations in Michigan, Iowa, and Tennessee had been treated.

Year-round regulation of soil and plants to prevent spread of the soil-inhabiting forms of the Japanese beetle from quarantined areas to noninfested areas was checked by means of 23,328 calls to shippers and carriers who moved products valued at more than $21 million.

Further consideration was given to the use of the milky spore disease for the control of the Japanese beetle especially in outlying areas. Research to find ways to mass-produce spores economically on artificial media has been undertaken by the Northern Utilization Research and Development Division of ARS at Peoria, Ill. The Entomology Research Division of ARS is supplying strains of the disease organism and conducting spore viability tests. Methods for aerial and ground dispersal of the material are being studied by the Plant Pest Control Division of ARS.

11. *Khapra beetle eradication.*—The eradication program is keeping pace with new finds. Since the program was undertaken in 1955, 689 properties having a total of 165,684,489 cubic feet have been found infested. As of October 31, 1959, 683 properties accounting for 164,691,449 cubic feet of storage space have been fumigated and are free to engage in normal business. A summary of the program by States follows:

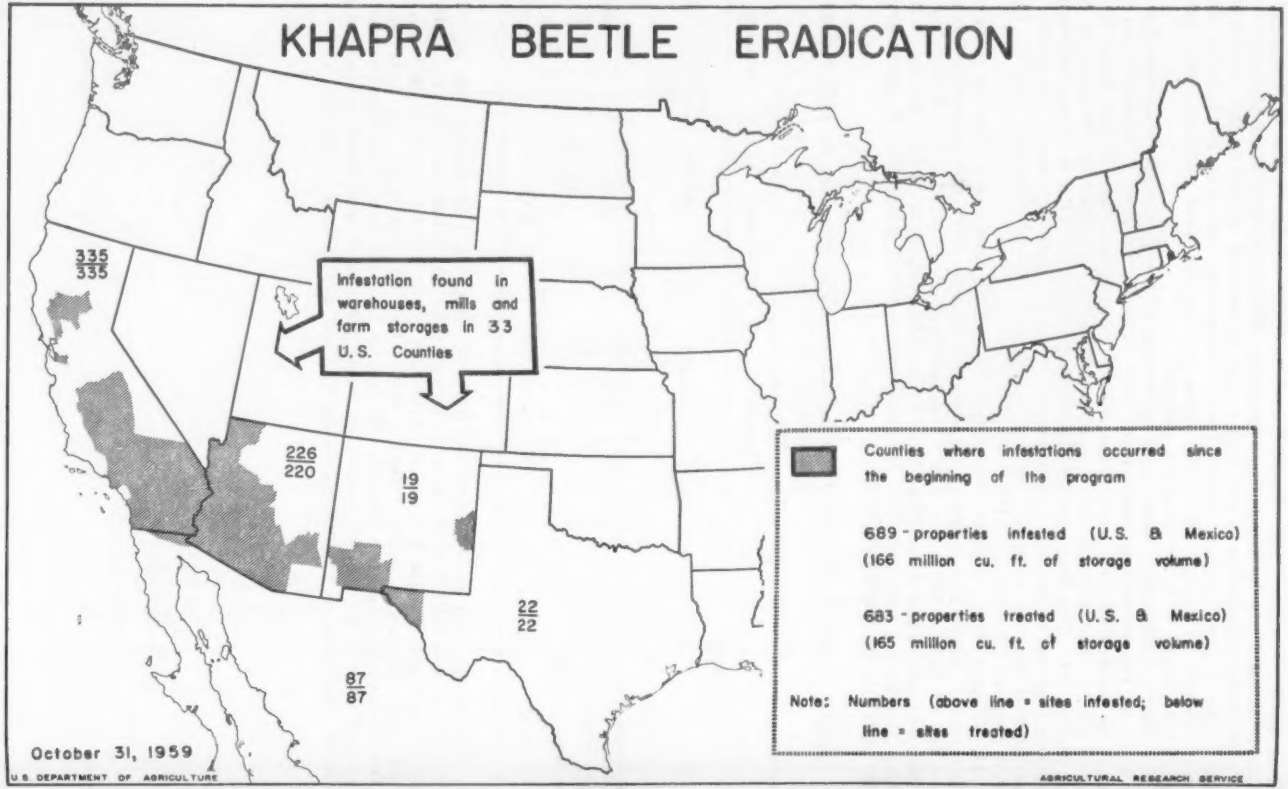
*Khapra beetle eradication from initiation of the program in 1955 through Oct. 31, 1959*

| State | Infested | | Treated | | Remaining | |
|---|---|---|---|---|---|---|
| | Number of properties | Cubic feet | Number of properties | Cubic feet | Number of properties | Cubic feet |
| California | 335 | 80,864,004 | 335 | 80,864,004 | | |
| Arizona | 226 | 56,313,470 | 220 | 55,320,430 | 6 | 993,040 |
| New Mexico | 19 | 1,778,808 | 19 | 1,778,808 | | |
| Texas | 22 | 1,850,716 | 22 | 1,850,716 | | |
| Republic of Mexico | 87 | 24,877,491 | 87 | 24,877,491 | | |
| Total | 689 | 165,684,489 | 683 | 164,691,449 | 6 | 993,040 |

During the year ended June 30, 1959, 12,361 properties were given an initial inspection and 30,995 sites were reinspected in 34 States and Mexico. Of the sites inspected 70 with volume of 16,382,940 cubic feet were found infested. Of this total, Texas, a newly infested State, had 22, California, 5; Arizona, 18; New Mexico, 13; and the Republic of Mexico, 12. Sixty-eight of these properties having a total volume of 15,698,400 cubic feet have now been fumigated and others will receive prompt attention as they are found. (See fig. 14.)

U.S. DEPARTMENT OF AGRICULTURE · AGRICULTURAL RESEARCH SERVICE

FIGURE 14

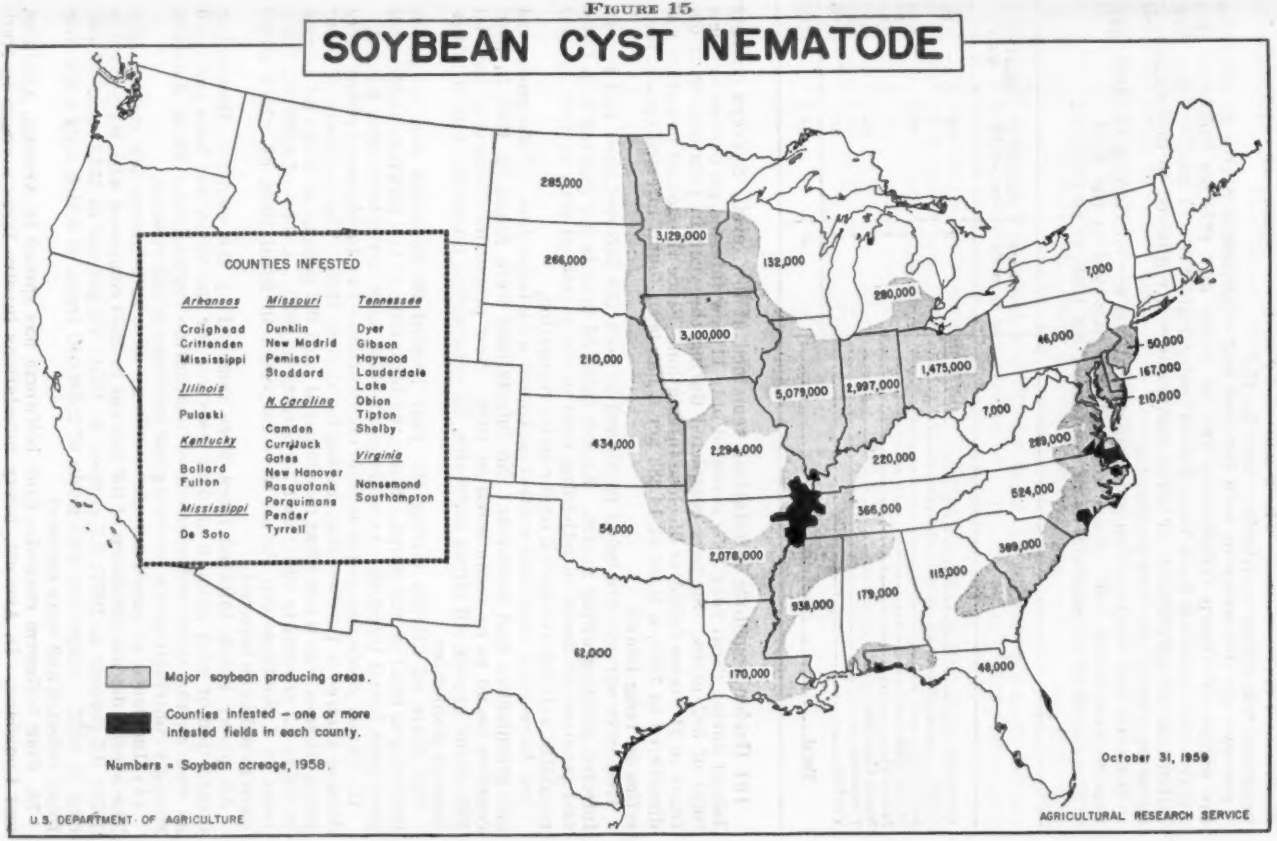

KHAPRA BEETLE ERADICATION
335/335
Infestation found in warehouses, mills and farm storages in 33 U.S. Counties
226/220
19/19
22/22
87/87
Counties where infestations occurred since the beginning of the program
689 - properties infested (U.S. & Mexico) (166 million cu. ft. of storage volume)
683 - properties treated (U.S. & Mexico) (165 million cu. ft. of storage volume)
Note: Numbers (above line = sites infested; below line = sites treated)
October 31, 1959
U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE

October 31, 1959

U.S. DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

FIGURE 15



12. *Nematode control.*—(*a*) Soybean cyst nematode damage to soybean plantings was widespread and severe in the infested areas in 1959. In Tennessee, approximately 2,000 acres of soybeans were plowed under because fields were considered a total loss. Other areas in Arkansas, Missouri, and North Carolina experienced severe damage which materially reduced yields. In September, the nematode was found in Illinois. (See fig. 15.)

Surveys are underway in both infested and noninfested States to determine the extent of known infestations and to locate any existing unknown ones. All infested locations have been placed under rigid Federal and/or State regulation and no agricultural or other commodities are allowed to move unless in accordance with approved procedures.

Research and methods improvement operations are continuing to investigate nematocides which will control or eradicate this pest in the field.

The status of infestations as of September 30, 1959, is as follows:

| State | Number of counties | Number of properties | Total infested acres |
|---|---|---|---|
| Arkansas | 3 | 307 | 8,070 |
| Illinois | 1 | 1 | 20 |
| Kentucky | 2 | 15 | 1,174 |
| Mississippi | 1 | 1 | 300 |
| Missouri | 4 | 199 | 7,036 |
| North Carolina | 7 | 160 | 3,665 |
| Tennessee | 8 | 170 | 8,960 |
| Virginia | 2 | 60 | 3,993 |
| Total | 28 | 913 | 33,218 |

(*b*) Golden nematode infestations remained at low level. Surveys on Long Island during fiscal year 1959 revealed only 11 new infested properties having a total of 582 acres. Surveys completed during the year in potato-growing districts in 21 States failed to disclose infestation. Since the golden nematode was discovered in 1945, a total of 14,233 acres has been found infested on 332 properties on Long Island.

Extensive surveys are being continued in both the infested area and in noninfested potato-growing States. Known infested land is not planted to potatoes and potatoes produced in adjoining land in the regulated area as well as other regulated articles are moved under strict regulation.

(*c*) Burrowing nematode control continued with inspections of 859 groves and 939 greenhouses and nurseries. No infestations were found in 1959 in those counties found to be noninfested in 1958. New properties discovered included 183 citrus groves, 46 citrus nurseries, 24 ornamental nurseries, and 9 miscellaneous properties.

The State of Florida during the year treated 96 nurseries and 85 groves, involving a total of 824 acres. Since the beginning of the program 11,038 acres have been found infested. As of June 30, 1959, 5,008 acres have been treated.

13. *Phony peach and peach mosaic eradication.*—(*a*) Incidence of phony peach disease showed a further drop during fiscal year 1959. The incidence of phony peach disease was 0.4 percent as compared with 0.5 percent in 1958; 0.7 percent in 1954; 1.3 percent in 1953; and 2.5 percent in 1952. A total of 6,297,857 peach trees in 7 Southeastern States were inspected in fiscal 1959, of which 26,500 were found to be infected.

All phony peach infected trees were removed by the owners. Removal or destruction of wild plum, a natural reservoir for the virus, has been continued as well as the strict enforcement of quarantine regulations. These measures strongly contribute to the recurring low incidence of this disease.

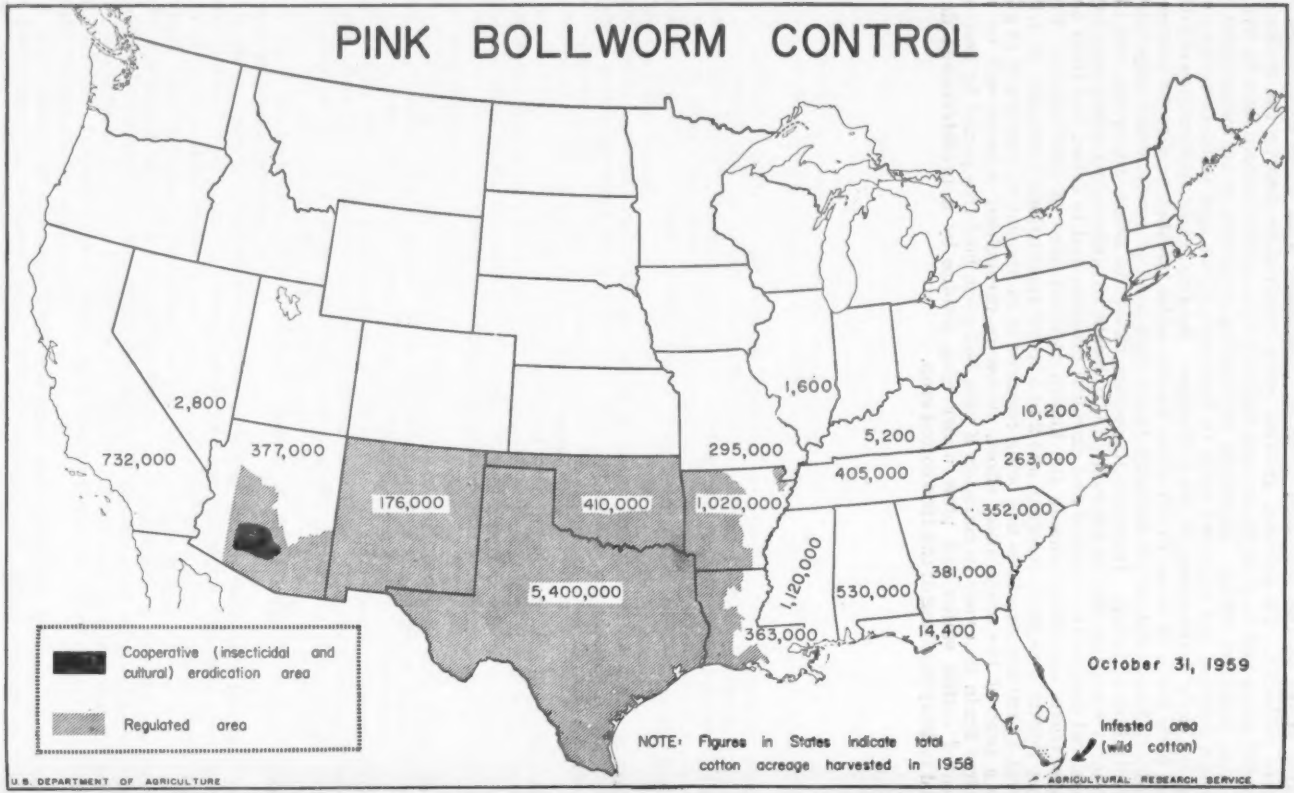
(*b*) Incidence of peach mosaic continues at a satisfactory low during 1959. The overall disease incidence of 0.6 percent in 1959 compared with 0.1 percent in 1958; 0.5 percent in 1957; 0.7 percent in 1954; 1.3 percent in 1953; and 2.5 percent in 1952. Inspection was made of 2,494,646 trees, of which only 1,462 were found infected and were removed.

14. *Pink bollworm control.*—Pink bollworm has spread in Arizona, Arkansas, and Louisiana. In Arizona, heavy infestations involve large acreage in Maricopa County, with lesser infestations in Pima and Pinal Counties. As of October 31, 1959, 10 additional counties in Arkansas were found lightly infested,

1 county as far east as the Mississippi River. Light infestations were recorded in eight new parishes in Louisiana. (See fig. 16.)

In Arkansas and Louisiana control measures included the destruction of all cotton stalks in the regulated areas in accordance with dates established by State authority. In Arizona, growers were required to destroy the stalks on 365,000 acres and to plow under crop residues by a predetermined date to create a long host-free period. Intensive eradication measures were inaugurated in known infested and adjacent fields in Maricopa, Pima, and Pinal Counties during the early development of the 1959 crops. By July, eight applications of DDT had been made to some 75,000 acres known to be infested or directly exposed. Federal, State, and cotton industry funds were used to continue the cooperative eradication program. Intensive inspection of cotton fields, gin trash, and lint cleaners was made during the early fall to locate any infestation which may have persisted despite the cultural and chemical program and to detect and treat new infestations occurring outside the known infested area of 1958 season. Five such infestations were detected, and 2-to-5 spray applications were made to 1,431 acres. Sanitary practices are being required in movement of cotton and at gins as a part of the eradication effort. Growers throughout Arizona will be required again this year to maintain a pink bollworm host-free period by destruction of cotton stalks and plow under crop residue by a predetermined date and to delay planting of the 1960 cotton crop.

FIGURE 16


PINK BOLLWORM CONTROL
2,800
732,000
377,000
176,000
410,000
1,020,000
295,000
1,600
5,200
10,200
405,000
263,000
352,000
5,400,000
1,120,000
530,000
381,000
363,000
14,400
Cooperative (insecticidal and cultural) eradication area
Regulated area
NOTE: Figures in States indicate total cotton acreage harvested in 1958
October 31, 1959
Infested area (wild cotton)
U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE

cotton acreage harvested in 1958

U.S. DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

FIGURE 17

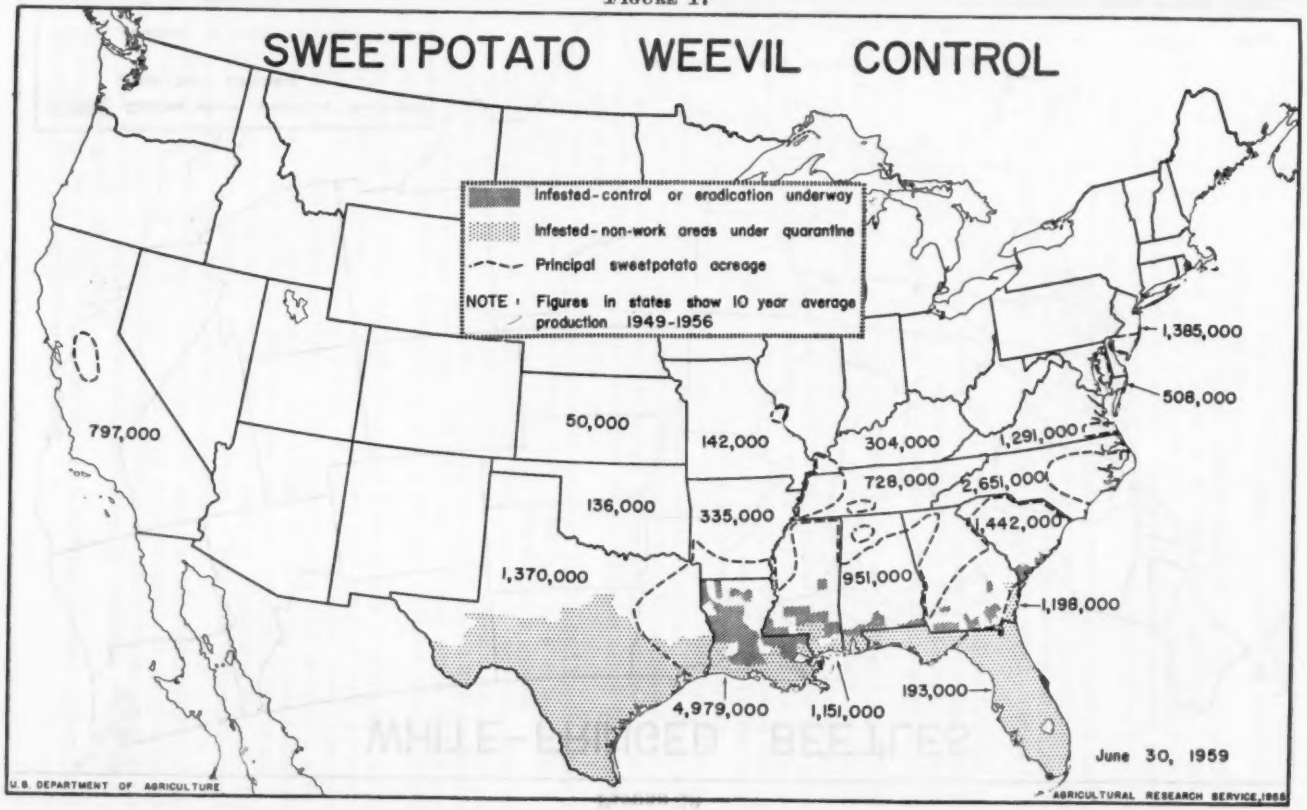
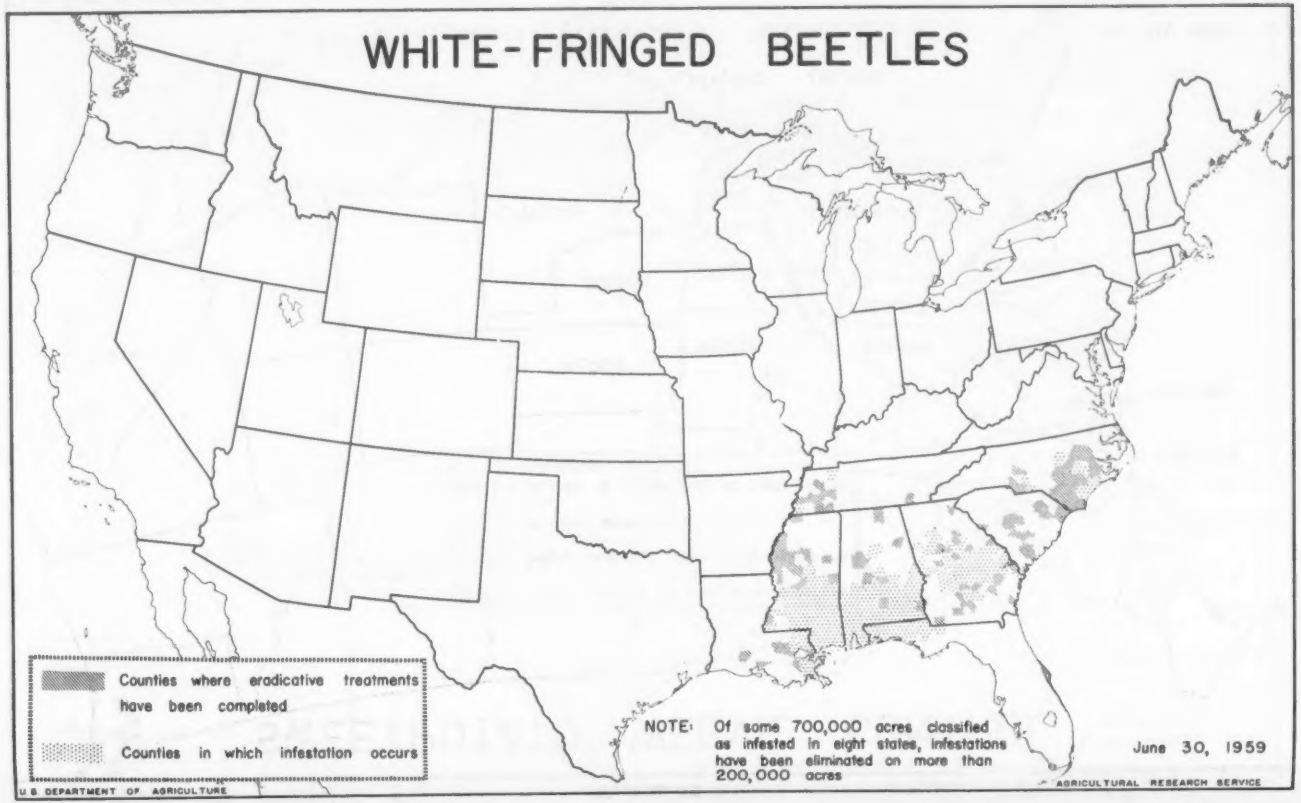


FIGURE 18


WHITE-FRINGED BEETLES
Counties where eradicative treatments have been completed
Counties in which infestation occurs
NOTE: Of some 700,000 acres classified as infested in eight states, infestations have been eliminated on more than 200,000 acres
June 30, 1959
U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE

Newly found infested locations placed under the quarantine regulation consisted of all or parts of 4 counties in Arizona, 5 parishes in Louisiana, and 25 counties in Arkansas.

A marked increase in intensity of infestation was noted in Texas. This is of particular importance since the central Texas area is a source of adult moths for natural spread eastward in wind currents.

To prevent spread, particular attention was directed to the interstate movement of milo feed grain from west Texas to Arizona and California. Trucks and rail cars used for hauling such grain are frequently contaminated with cotton seed from pink bollworm infested areas. Cooperation with carriers, millers, and other shippers has improved necessary sanitary measures in order to eliminate this hazard to western cotton areas.

15. *Sweetpotato weevil control.*—No new counties were found infested during the past fiscal year. Over 81,000 inspections were made for the weevil in the Southern States during this period. A total of 2,117 farms was freed of the weevil by cooperative work with growers in the 6 States in which control is in operation.

The sweetpotato crop was protected by the growers in this area through application of insecticide to 2,549 seedbeds and 12,448 acres of plantings, and by the dusting of 1,326,312 bushels of sweetpotatoes before fall storage. Cooperative wild host plant suppression was more successful than in any year since the program began in 1946. (See fig. 17.)

16. *White-fringed beetle control.*—More than 117,000 acres received soil treatment during the year compared with 53,000 acres in fiscal year 1958. The increase was made possible in several States through a combination of white-fringed beetle and imported fire ant eradication in areas where the two pests occur together. Progress in the eradication effort is indicated in that twice as many acres were treated for the beetle as were found newly infested during the year. The fiscal year 1960 program calls for the treatment of 126,000 more acres in 51 additional counties of the white-fringed beetle infested area.

White-fringed beetles have been found on 701,811 acres in Alabama, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee. Of the total infested acreage more than 200,000 acres have been treated and considered to be free from infestation. Included in the treatment are all of the infestations in 87 of the 211 infested counties, which includes all of the known infested lands in South Carolina. (See fig. 18.)

The application of insecticides to nurseries, railroad yards, and loading points to reduce or eliminate beetle populations was continued as a safe means of moving products and eliminating the hazard of long-distance spread.

17. *Witchweed eradication.*—As of June 30, 1959, systematic surveys revealed that witchweed infests all or part of 112,480 acres. This infestation occurs on 4,503 properties involving 75,901 acres in North Carolina, and 1,357 properties having 36,579 acres in South Carolina. Of the total infested acres, 98,826 are cultivated and the remaining 13,654 acres are in pasture or other noncultivated land. (See fig. 19.)

Cultural controls and chemicals are being used to eradicate witchweed. As of October 16, 1959, an aggregate of 204,609 acres had been sprayed with a recommended herbicide, in most instances 2,4–D. Cultural control practices have been carried out on 15,887 acres involving 1,246 properties in the two-State area. Surveys for 3 successive years reveal identical infestation pattern and although four new counties were added in 1959 the area remains essentially the same.

A methods improvement laboratory was established at Whiteville, N.C., to find more effective ways of dealing with this problem. There are indications that certain preplanting herbicides can be used successfully.

During the year considerable refinement was made in the descriptions of infested sites. All areas were redescribed into smaller units or as individual properties. This has permitted closer regulation of the local movement of farm products and machinery and offers needed protection to locations where eradication measures are being applied.

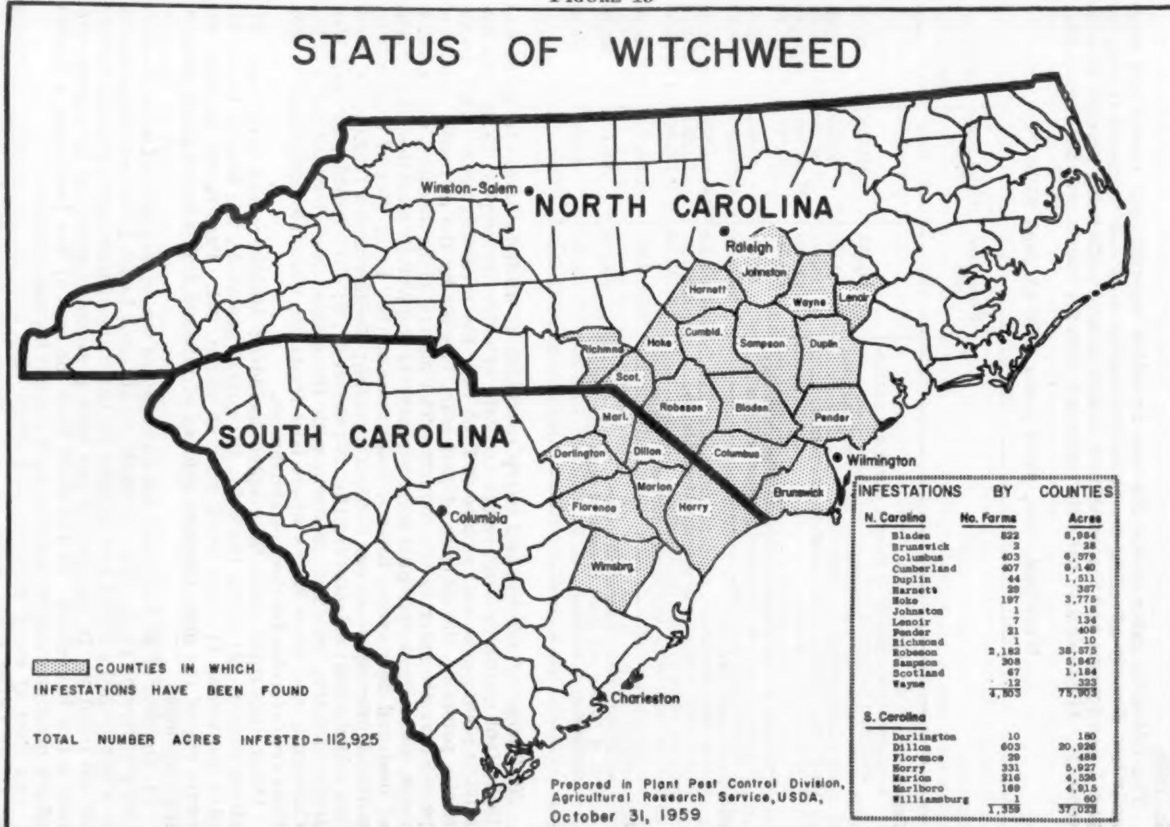
18. *Contingency fund.*—Table II shows the releases from the contingency fund for fiscal years 1954 through November 1959.

TABLE II.—*Releases from the contingency fund for control of emergency outbreaks of insects and plant diseases, fiscal years 1954 through 1960 (Nov. 30, 1959)*

| | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 to Nov. 30, 1959 |
|---|---|---|---|---|---|---|---|
| Contingency fund: | | | | | | | |
| Annual appropriation acts | $600,000 | $400,000 | $1,000,000 | $4,400,000 | $1,000,000 | $1,000,000 | $1,500,000 |
| Supplemental appropriation acts | | 650,000 | 650,000 | 3,450,000 | | 500,000 | |
| Total appropriations for contingency fund | 600,000 | 1,050,000 | 1,650,000 | [1] 7,850,000 | 1,000,000 | 1,500,000 | 1,500,000 |
| Releases for control of emergency outbreaks of insects: | | | | | | | |
| Grasshoppers and Mormon crickets | 528,940 | 284,300 | 566,000 | 1,028,000 | [2] | | |
| Burrowing nematode | | 35,000 | 150,000 | 403,000 | [2] | | |
| European chafer | | 50,000 | 83,000 | 80,000 | [2] | | |
| Mexican fruitfly | | 125,000 | 137,000 | 135,000 | [2] | | |
| Mediterranean fruitfly | | | | [1] 4,675,000 | 55,000 | [2] | |
| Witchweed | | | | 22,000 | 330,000 | [2] | |
| Soybean cyst nematode | | | 30,000 | 77,000 | 280,000 | 320,000 | |
| Khapra beetle | | 150,000 | 684,000 | 960,000 | 135,000 | 80,000 | |
| Pink bollworm | | | | | | 500,000 | 500,000 |
| Hoja blanca | | | | | | | 150,000 |
| Total releases | 528,940 | 650,300 | 1,650,000 | 7,380,000 | 800,000 | 900,000 | 650,000 |
| Balance in contingency fund | 71,060 | 399,700 | | 470,000 | 200,000 | 600,000 | 850,000 |

[1] Includes $1,250,000 which was immediately available in fiscal year 1956 for control of Medfly.
[2] The program is no longer financed regularly from the contingency fund.

FIGURE 19


STATUS OF WITCHWEED
NORTH CAROLINA
SOUTH CAROLINA
Winston-Salem
Raleigh
Wilmington
Columbia
Charleston
Johnston
Harnett
Wayne
Lenoir
Cumbld.
Sampson
Duplin
Richmond
Hoke
Scot.
Robeson
Bladen
Pender
Marl.
Darlington
Dillon
Columbus
Brunswick
Marion
Florence
Horry
Wmsbrg.
COUNTIES IN WHICH INFESTATIONS HAVE BEEN FOUND
TOTAL NUMBER ACRES INFESTED—112,925
Prepared in Plant Pest Control Division, Agricultural Research Service, USDA, October 31, 1959
INFESTATIONS BY COUNTIES
N. Carolina — No. Farms — Acres
Bladen 822 8,984
Brunswick 2 28
Columbus 403 6,579
Cumberland 407 8,140
Duplin 44 1,511
Harnett 29 387
Hoke 197 3,775
Johnston 1 18
Lenoir 7 134
Pender 21 408
Richmond 1 10
Robeson 2,182 38,575
Sampson 308 5,847
Scotland 67 1,184
Wayne 12 323
4,503 75,903
S. Carolina
Darlington 10 160
Dillon 603 20,926
Florence 29 488
Horry 331 5,927
Marion 216 4,526
Marlboro 169 4,915
Williamsburg 1 60
1,359 37,022

*Plant quarantine*

19. *Foreign travel continues to set new records.*—Entries of people into the United States, including daily border traffic, rose from 134.1 million in 1956 to 144.6 million in 1957, and to 151.4 million in 1958. International travel directly affects the plant quarantine workload. The upward trend in such travel is continuing in the calendar year 1959 and is expected to be even more pronounced in 1960.

The following table shows the rate at which international travel and other activities directly affecting the plant quarantine workload increased during the past 2 fiscal years, and the associated danger of new pests being brought into the country. The table also projects estimated data for the current fiscal year 1960.

*Workload data, fiscal years 1958 through 1960*

| | Fiscal year 1958 | Fiscal year 1959 | Fiscal year 1960 (estimated) |
|---|---|---|---|
| Inspection: | | | |
| Airplanes, approximately 35 percent carrying unauthorized plant material in 1959 | 121,231 | 133,723 | 147,500 |
| Vessels inspected, approximately 38 percent carrying unauthorized material in 1959 | 55,348 | 58,995 | 62,900 |
| Cargo importation of plant material under permit | 68,647 | 79,731 | 92,600 |
| Mail inspection, packages | 35,930,743 | 37,391,885 | 38,912,200 |
| Air cargo inspection, packages | 786,381 | 932,091 | 1,104,800 |
| Miscellaneous cargo inspections (automobiles, machinery, etc., for contamination by plant pests), man-hours | 30,414 | 37,209 | 45,500 |
| Packages cleaned or treated | 1,326,189 | 1,614,016 | 1,964,300 |
| Cooperation with Customs: | | | |
| Vehicles from Mexico | 19,434,535 | 21,119,747 | 22,951,000 |
| Baggage with surface-borne passengers from Mexico | 5,387,531 | 8,111,060 | 12,211,400 |
| Baggage, airborne, pieces of (all ports) | 8,790,520 | 9,733,480 | 10,777,600 |
| Baggage with ships' passengers, number of pieces (all ports) | 3,098,998 | 3,486,640 | 3,922,700 |
| Interceptions: | | | |
| Unauthorized plant material, all sources | 311,391 | 319,713 | 328,300 |
| Lots of insects and plant diseases of plant quarantine significance, all sources | 18,198 | 25,296 | 35,200 |

20. *Threat of foreign pest entry continues at all-time high.*—In fiscal year 1959 plant quarantine inspectors at ports of entry intercepted 25,296 lots containing plant pests, an increase of 7,098 over the preceding year. This dramatically points up the dangers of pest entry created by the increased number of people that are entering the country. The insects, plant diseases, snails, nematodes, and mites intercepted included many of the world's most destructive pests of food and fiber crops, forests, and ornamentals. Fruit flies of economic importance intercepted at our borders included: Mediterranean fruitfly, 99; Mexican fruitfly, 130; oriental fruitfly, 29; melon fly, 9; olive fruitfly, 43; and West Indian fruitfly, 98. The products with these flies were destined for Florida, California, and other States where host fruits are available and climatic conditions are favorable for their establishment.

Other important pests intercepted included: Mediterranean land snail, 87; citrus canker, 82; citrus black fly, 10; golden nematode, 75; khapra beetle, 44; pink bollworm, 17; and black spot of citrus, 211. Passengers' baggage was again one of the most frequent sources of infested and infected plant material interceptions.

21. *Opening of St. Lawrence Seaway exposes major agricultural areas to direct entry of foreign pests.*—The accessibility of Great Lakes ports to oceangoing vessels has opened a broad new avenue for the entry of plant pests into the interior of the country. In the past it has been possible to cover the lake ports with only a few inspectors. In the short time the seaway has been open, a number of new plant quarantine problems have already become evident.

(*a*) *Port of entry inspection.*—Foreign ship arrivals are rapidly increasing at Great Lakes ports, some at ports where plant quarantine service is not available. Only a few days after the seaway opened, a ship at Cleveland was found to be infested with the khapra beetle. The infested holds were fumigated before any cargo was permitted to be discharged. The presence of large numbers of grain elevators in lake ports, and their proximity to the Grain Belt, make the khapra beetle a serious threat to the area.

(*b*) *Export certification*—The demand for export certification service at lake ports will greatly increase now that single-loading water-freight shipment is available directly from the Grain Belt. Shipments of grain are being made from ports not presently staffed, necessitating the detail of personnel from other ports.

(*c*) *Dangers from ships' garbage.*—Ships' garbage often contains infested and infected plant material, as well as unauthorized meat and meat products. Such garbage must be disposed of in a manner that will preclude the escape and establishment of pests or diseases it might harbor. This problem is new to the lake ports and is already causing difficulties. Shortly after the seaway opened to traffic it was necessary to work out safeguards for the discharge of garbage from a ship at Toledo, where facilities for incineration are not available. Procedures must be devised for the safe handling of ships' garbage at all of the lake ports by incineration or some equally effective treatment.

(*d*) *Close cooperation with Canadian officials and other interests associated with foreign shipping at lake ports required.*—Ships using the St. Lawrence Seaway touch at ports in both Canada and the United States. A new pest entering at any port on the route presents an immediate threat to the other country. Close working relationship will be necessary to coordinate work on these mutual problems.

In addition, many importers, exporters, customs brokers, transportation agencies and others concerned with the foreign shipments at lake ports must be familiarized with quarantine regulations and safeguards which must be applied.

22. *Heavy volume of vehicular traffic from Mexico necessitates opening new border crossings.*—In 1959 over 21 million vehicles entered the United States through Mexican border ports, an increase of almost 2 million over the preceding year. Present crossing facilities are not adequate to handle this volume of traffic. A new border crossing was opened at El Paso in August 1959 to relieve congestion at that port, and another crossing will be opened near Mission, Tex., in December 1959. Both stations require plant quarantine inspection staffs. Facilities at other ports are being renovated to provide for additional traffic lanes, which also will have to be staffed.

Automobile and truck traffic entering at Naco, Ariz., and Fabens and Falcon, Tex., had increased to the point where there is urgent need for plant quarantine coverage at those ports.

The importation of Mexican vegetables through Nogales, Ariz., has been growing steadily in recent years and reached an all-time high in 1959. The demand for prompt plant quarantine clearance at that port is exceedingly heavy.

23. *Preflight clearance of aircraft inaugurated in Nassau.*—The Customs and Immigration and Naturalization Services have initiated a practice of clearing passengers on scheduled flights from Nassau to the United States prior to departure from those points. Since agricultural quarantine clearance of passengers and baggage must be effected simultaneously with customs clearance, it will be necessary to station inspectors at Nassau for that purpose. A minimum of three inspectors will be required. They will be concerned with both plant and animal quarantine problems.

## Animal Disease and Pest Control

### CURRENT ACTIVITIES

Measures are devised to exclude from this country communicable animal diseases of foreign origin; to prevent the spread of communicable diseases through interstate shipments of livestock or distribution of impure or impotent veterinary biologics; to control and eradicate livestock diseases; and to maintain, through a marketing agreement with manufacturers and handlers, adequate supplies of hog cholera virus, serum, and vaccine for protection of swine.

### SELECTED EXAMPLES OF RECENT PROGRESS

*Animal disease control and eradication*

1. *Tuberculosis eradication.*—(*a*) Comprehensive epidemiological projects were instituted in cooperation with several States to provide essential program information. Up-to-date information regarding the epidemiology of bovine tuberculosis and the relationship of other mycobacterial diseases, such as human and avian tuberculosis and paratuberculosis, is essential for greater effectiveness of operation in various phases of eradication. Such information will enable

further progress in determining the extent to which various related mycobacterial diseases enter into the program of bovine tuberculosis detection and eradication.

(*b*) National eartagging plan aids in tracing infected and exposed animals. Such tracing is essential to early disclosure of infection in cattle and subsequent reduction in human exposure. A national eartagging plan has been devised and placed in operation in cooperation with many of the States through the Dairy Herd Improvement Association, National Artificial Breeders Association, and the Department. The plan provides a uniform numbering system with appropriate record controls to facilitate greater ease and thoroughness in tracing individual animal movements. There are currently 40 States which are now operating in this cooperative plan. During the fiscal year 1959, case finding procedures resulted in disclosure of many foci of infection.

(*c*) A comparison of funds provided by the Federal Government and cooperating States and counties for the eradication of tuberculosis for the fiscal years 1959 and 1960 follows:

| Item | Fiscal year 1959 | | Fiscal year 1960 | |
|---|---|---|---|---|
| | Federal Government | Cooperators | Federal Government | Cooperators |
| Operating funds | $1,588,950 | $4,789,390 | $1,703,300 | $5,271,784 |
| Indemnity payments | 478,285 | 744,732 | 440,000 | 814,398 |
| Total | 2,067,235 | 5,534,122 | 2,143,300 | 6,086,182 |

(*d*) Tables III and IV show the average State and Federal indemnity payments and other data pertaining to the program for control and eradication of tuberculosis.

2. *Brucellosis eradication.*—(*a*) Over half of all counties in the United States and territories are now modified certified brucellosis areas. This reflects the continued strong support being given the eradication effort in most sections of the country and confirms the value of procedures being employed. Fiscal year 1959 marked the first time the cooperative brucellosis program was operating on an area basis in all States.

Table V shows the brucellosis program activities conducted during fiscal year 1959. While there was a slight reduction as compared with 1958, in the volume of blood and ring testing, the levels were comparable to those maintained over the past few years. The consistent increase in calf vaccinations noted each year since strain 19 vaccine became a part of the official program was continued.

(*b*) Infection rates were reduced further. The blood testing of 14 million cattle in almost 1 million herds during 1959 revealed 1.5 percent reactor cattle and 8.2 percent reactor herds compared with 1.6 percent and 9.2 percent, respectively, in 1958. This reduced infection is especially significant because much of the 1959 blood testing was restricted to herds showing evidence of infection from ring test results.

(*c*) Modified certified brucellosis areas continued to increase at an encouraging rate. In fiscal year 1959, 436 new counties were listed as modified certified areas as compared with 490 certifications recorded during 1958. To meet the requirements necessary for this designation, infection must be reduced to not more than 1 percent of the cattle and 5 percent of the herds. At the close of fiscal year 1959, a total of 1,653 counties in 47 States were designated as modified certified areas. Work is continuing in an additional 504 counties to reduce the infection rate in their respective areas so they may be classified as modified certified.

It is noteworthy that on the last complete area test no reactors were found in 152 of the modified certified counties. This emphasizes the value of the certification program in moving toward complete eradication of bovine brucellosis.

(*d*) Uses of composite Babcock samples as a source of milk for the ring test has been found to be a reliable and economic procedure in locating brucella infection in dairy herds. This method of conducting the ring test has been subjected to both controlled laboratory and field studies. During the year additional States have modified their ring testing programs to make use of the Babcock sample method. At present, 26 States are utilizing this new procedure which is contributing much toward more efficient program operations. Nearly

1,697,000 herds of cattle were tested by the ring test in fiscal year 1959. Of these 6.1 percent reacted as suspicious to the test as compared with 9.4 percent in fiscal year 1958.

(*e*) Method developed for wide-scale testing range and semirange herds. This procedure covers the collection of blood samples at slaughtering establishments or other concentration points as a means of screening range and semirange herds for evidence of brucellosis. It can be used to advantage in the recertification of range areas and will provide benefits comparable to ring testing in dairy areas. As cull and dry cattle move to market, they will be identified and the results of blood tests conducted at the time of slaughter will be credited to the respective States, counties, and herds of origin. Under this procedure it will be necessary to blood test only those herds showing evidence of infection. It is anticipated that this recertification method will be operating in several States during the current year at the time cull and dry cows are normally moved to market.

(*f*) Data comparing brucellosis eradication activities in fiscal year 1959 with fiscal year 1958 follows:

| | Fiscal year 1958 | Fiscal year 1959 |
|---|---|---|
| BRUCELLOSIS RING TESTS | | |
| Herds tested | 1,750,510 | 1,696,920 |
| Estimated cattle in herds tested | 30,927,215 | 30,693,440 |
| Suspicious herds | 164,224 | 103,987 |
| Percent of herds suspicious | 9.4 | 6.1 |

TABLE III.—*Statement of comparative testing, herds and cattle under supervision, modified accredited areas—average appraisal, salvage, and State and Federal indemnity in tuberculosis eradication work, fiscal years 1935–59, inclusive*

| Fiscal year | Tests conducted | | Reactors found | Percent infection | Under supervision | | Modified accredited areas [1] | Average during year | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Herds | Cattle | | | Herds | Cattle | | Appraisal | Salvage | State indemnity | Federal indemnity |
| 1935 | 2,378,668 | 25,237,532 | 376,623 | 1.5 | 6,590,863 | 48,768,627 | 2,428 | $57.55 | $15.19 | $15.87 | $18.70 |
| 1936 | 1,944,624 | 22,918,038 | 165,496 | .7 | 6,515,273 | 59,907,935 | 2,921 | 77.66 | 26.50 | 10.18 | 22.44 |
| 1937 | 961,109 | 13,750,308 | 94,104 | .7 | 6,745,471 | 61,640,711 | 3,030 | 86.04 | 28.94 | 12.20 | 22.72 |
| 1938 | 1,007,586 | 14,108,871 | 89,359 | .6 | 6,471,538 | 62,640,358 | 3,124 | 86.76 | 32.16 | 16.41 | 18.12 |
| 1939 | 750,806 | 11,186,805 | 60,338 | .5 | 6,372,720 | 60,439,030 | 3,142 | 89.01 | 34.49 | 18.96 | 15.97 |
| 1940 | 819,408 | 12,222,318 | 56,343 | .46 | 6,191,330 | 61,570,426 | 3,148 | 91.05 | 37.12 | 20.44 | 16.20 |
| 1941 | 777,435 | 12,229,499 | 40,702 | .3 | 6,235,198 | 62,696,167 | 3,151 | 96.50 | 40.99 | 20.95 | 16.48 |
| 1942 | 681,504 | 10,983,086 | 28,008 | .26 | 6,320,006 | 63,073,213 | 3,151 | 109.69 | 50.35 | 21.49 | 16.55 |
| 1943 | 563,413 | 9,308,936 | 17,167 | .18 | 6,317,670 | 63,846,496 | 3,151 | 135.19 | 65.03 | 27.50 | 18.75 |
| 1944 | 524,927 | 8,894,466 | 18,338 | .2 | 6,153,069 | 64,519,652 | 3,151 | 154.53 | 59.93 | 36.07 | 21.72 |
| 1945 | 484,749 | 8,105,480 | 19,534 | .24 | 6,120,528 | 64,790,921 | 3,151 | 161.32 | 59.78 | 40.31 | 22.71 |
| 1946 | 505,296 | 8,454,463 | 19,464 | .23 | 6,035,783 | 65,981,099 | [2] 3,150 | 174.20 | 69.00 | 37.26 | 23.89 |
| 1947 | 515,517 | 8,312,919 | 16,666 | .2 | 6,082,666 | 65,577,421 | 3,150 | 199.46 | 83.55 | 40.81 | 24.19 |
| 1948 | 523,924 | 8,294,423 | 15,943 | .19 | 6,044,170 | 66,246,215 | 3,150 | 234.60 | 119.74 | 38.53 | 23.90 |
| 1949 | 536,162 | 8,737,501 | 17,007 | .19 | 5,985,215 | 65,419,332 | 3,150 | 285.78 | 139.46 | 37.68 | 24.72 |
| 1950 | 539,799 | 9,439,811 | 17,733 | .19 | 5,991,703 | 65,443,353 | 3,150 | 272.87 | 123.24 | 43.40 | 25.05 |
| 1951 | 503,933 | 8,847,228 | 12,353 | .14 | 5,808,062 | 64,824,960 | [2] 3,149 | 323.70 | 174.64 | 43.59 | 24.92 |
| 1952 | 488,769 | 9,164,265 | 10,351 | .11 | 5,798,865 | 64,791,861 | 3,149 | 346.13 | 174.05 | 46.15 | 25.66 |
| 1953 | 463,159 | 9,675,245 | 10,811 | .11 | 5,688,183 | 67,423,940 | 3,149 | 309.47 | 117.31 | 49.22 | 26.12 |
| 1954 | 478,975 | 10,234,665 | 10,886 | .11 | 5,681,947 | 67,937,276 | 3,149 | 250.92 | 82.18 | 43.76 | 26.60 |
| 1955 | 417,683 | 9,210,810 | 11,133 | .12 | 4,669,733 | 79,567,058 | 3,149 | 235.10 | 77.63 | 45.24 | 25.28 |
| 1956 | 418,059 | 9,220,244 | 14,363 | .15 | 4,645,342 | 86,869,478 | [2] 3,148 | 246.52 | 89.43 | 39.97 | 25.60 |
| 1957 | 414,162 | 8,976,409 | 13,974 | .16 | 4,229,996 | 85,272,126 | [4] 3,150 | 255.69 | 94.06 | 38.44 | 25.78 |
| 1958 | 396,587 | 8,883,813 | 15,361 | .17 | 4,108,329 | 86,573,974 | 3,150 | 301.81 | 133.27 | 36.65 | 26.13 |
| 1959 | 366,357 | 8,187,161 | 18,914 | .23 | 3,954,681 | 86,730,187 | [3] 3,148 | 352.17 | 167.27 | 32.68 | 26.10 |

[1] Includes Puerto Rico and the Virgin Islands.
[2] Reduction is due to consolidation of counties.
[3] Reduction is due to no cattle in District of Columbia.
[4] Increase is due to addition of new counties.

TABLE IV.—*Summary of bovine tuberculosis eradication in cooperation with the various States, fiscal year 1959*

| State | Herds tested | Cattle tested | Infected premises | Percent infected | Reactors found | Percent reactors |
|---|---|---|---|---|---|---|
| Alabama | 1,673 | 76,353 | 10 | 0.60 | 14 | 0.02 |
| Arizona | 1,105 | 27,308 | 26 | 2.35 | 61 | .22 |
| Arkansas | 2,796 | 52,674 | 2 | .07 | 2 | .01 |
| California | 13,962 | 704,805 | 526 | 3.77 | 2,049 | .29 |
| Colorado | 857 | 19,571 | 4 | .47 | 4 | .04 |
| Connecticut | 5,421 | 134,518 | 42 | .77 | 82 | .06 |
| Delaware | 1,952 | 38,779 | 8 | .41 | 10 | .03 |
| Florida | 2,995 | 221,572 | 107 | 3.57 | 650 | .29 |
| Georgia | 2,755 | 90,202 | 27 | .98 | 174 | .19 |
| Idaho | 1,845 | 42,197 | 8 | .43 | 8 | .02 |
| Illinois | 11,977 | 298,204 | 182 | 1.52 | 370 | .12 |
| Indiana | 18,521 | 215,040 | 144 | .78 | 238 | .11 |
| Iowa | 4,382 | 116,548 | 126 | 2.88 | 222 | .19 |
| Kansas | 8,105 | 163,885 | 37 | .46 | 53 | .03 |
| Kentucky | 6,079 | 82,401 | 67 | 1.10 | 198 | .24 |
| Louisiana | 1,943 | 99,990 | 34 | 1.75 | 105 | .12 |
| Maine | 4,525 | 76,278 | 4 | .09 | 5 | .01 |
| Maryland | 11,363 | 271,554 | 65 | .57 | 84 | .03 |
| Massachusetts | 7,897 | 156,832 | 29 | .37 | 42 | .03 |
| Michigan | 19,843 | 374,897 | 2,872 | 14.47 | 5,924 | 1.58 |
| Minnesota | 34,981 | 624,818 | 141 | .40 | 221 | .04 |
| Mississippi | 2,415 | 71,257 | 10 | .41 | 24 | .03 |
| Missouri | 10,226 | 223,308 | 13 | .13 | 19 | .01 |
| Montana | 1,072 | 32,961 | 3 | .28 | 4 | .01 |
| Nebraska | 2,948 | 78,209 | 44 | 1.49 | 66 | .08 |
| Nevada | 550 | 7,749 | 7 | 1.27 | 12 | .15 |
| New Hampshire | 6,790 | 82,392 | 4 | .06 | 8 | .01 |
| New Jersey | 6,132 | 187,943 | 166 | 2.71 | 219 | .12 |
| New Mexico | 709 | 23,615 | 1 | .14 | 10 | .04 |
| New York | 16,986 | 411,679 | 164 | .97 | 492 | .12 |
| North Carolina | 9,294 | 172,763 | 9 | .10 | 22 | .01 |
| North Dakota | 896 | 21,848 | 23 | 2.57 | 47 | .22 |
| Ohio | 25,768 | 352,879 | 630 | 2.44 | 1,004 | .28 |
| Oklahoma | 3,873 | 112,996 | 58 | 1.50 | 108 | .05 |
| Oregon | 6,869 | 83,738 | 23 | .33 | 25 | .03 |
| Pennsylvania | 33,354 | 526,668 | 231 | .69 | 690 | .13 |
| Rhode Island | 1,562 | 21,233 | 5 | .32 | 5 | .02 |
| South Carolina | 3,064 | 66,469 | 9 | .29 | 16 | .02 |
| South Dakota | 1,277 | 58,022 | 40 | 3.13 | 93 | .16 |
| Tennessee | 3,720 | 99,866 | 46 | 1.24 | 88 | .09 |
| Texas | 11,567 | 292,126 | 98 | .85 | 240 | .08 |
| Utah | 4,478 | 41,770 | 88 | 1.97 | 105 | .25 |
| Vermont | 5,189 | 143,787 | 44 | .85 | 127 | .09 |
| Virginia | 7,080 | 228,158 | 25 | .35 | 70 | .03 |
| Washington | 1,476 | 39,724 | 18 | 1.22 | 28 | .07 |
| West Virginia | 2,046 | 46,888 | 8 | .39 | 14 | .03 |
| Wisconsin | 27,020 | 716,543 | 1,954 | 7.23 | 4,716 | .66 |
| Wyoming | 1,001 | 18,426 | 22 | 2.20 | 67 | .36 |
| Alaska | 126 | 1,967 | 0 | 0 | 0 | 0 |
| Hawaii | 531 | 24,812 | 17 | 3.20 | 63 | .25 |
| Puerto Rico | 3,361 | 108,939 | 13 | .39 | 16 | .01 |
| Total | 366,357 | 8,187,161 | 8,234 | 2.247 | 18,914 | .231 |

TABLE V.—*Summary of bovine brucellosis eradication in cooperation with the various States, fiscal year 1959*

| State or Territory | Brucellosis blood tests and calfhood vaccinations | | | | | | | | Brucellosis ring tests | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Herds tested | Cattle | Infected herds | | | Reactors | | | Calves vaccinated | Herd tests | Estimated cattle represented | Suspicious herd tests | Percent suspicious herds | Estimated negative cattle |
| | | | Number | Percent [1] | Percent [2] | Number found | Percent [1] | Percent [2] | | | | | | |
| Alabama | 21,312 | 246,808 | 1,789 | 8.4 | 7.5 | 4,247 | 1.72 | 1.20 | 66,725 | 5,890 | 259,160 | 969 | 16.5 | 216,524 |
| Arizona | 4,182 | 82,543 | 218 | 5.2 | 4.6 | 932 | 1.13 | 0.74 | 18,793 | 1,302 | 103,618 | 194 | 14.9 | 87,160 |
| Arkansas | 34,978 | 415,907 | 3,254 | 9.3 | 7.6 | 7,667 | 1.84 | 1.45 | 147,301 | 18,280 | 275,392 | 2,945 | 16.1 | 229,328 |
| California | 13,095 | 358,006 | 1,225 | 9.4 | 7.2 | 5,777 | 1.61 | 0.93 | 439,698 | 10,360 | 719,876 | 2,363 | 22.8 | 522,078 |
| Colorado | 12,131 | 191,163 | 887 | 7.3 | 5.7 | 1,779 | 0.93 | 0.59 | 147,147 | 7,370 | 118,318 | 438 | 5.9 | 108,433 |
| Connecticut | 4,540 | 97,636 | 185 | 4.1 | 2.6 | 261 | 0.27 | 0.18 | 20,718 | 5,617 | 111,745 | 521 | 9.3 | 102,111 |
| Delaware | 1,999 | 30,562 | 24 | 1.2 | 0.8 | 51 | 0.17 | 0.09 | 5,412 | 2,072 | 50,451 | 54 | 2.6 | 49,148 |
| Florida | 8,976 | 298,425 | 775 | 8.6 | 7.2 | 6,599 | 1.72 | 0.92 | 106,132 | 7,142 | 1,554,165 | 3,460 | 48.4 | 420,700 |
| Georgia | 31,095 | 598,169 | 2,422 | 7.8 | 7.0 | 7,136 | 1.19 | 0.92 | 61,156 | 7,928 | 433,648 | 1,257 | 15.9 | 363,256 |
| Idaho | 7,885 | 152,157 | 558 | 7.1 | 2.8 | 1,627 | 1.07 | 0.48 | 183,459 | 26,811 | 402,165 | 2,107 | 7.9 | 370,560 |
| Illinois | 52,949 | 477,121 | 2,304 | 4.4 | 2.6 | 4,554 | 0.95 | 0.56 | 134,224 | 75,607 | 687,782 | 1,921 | 2.5 | 670,274 |
| Indiana | 33,997 | 331,442 | 2,118 | 6.2 | 3.1 | 4,769 | 1.44 | 0.76 | 76,376 | 70,757 | 603,666 | 1,264 | 1.8 | 592,764 |
| Iowa | 49,571 | 442,499 | 4,933 | 10.0 | 3.9 | 11,743 | 2.65 | 0.89 | 257,149 | 167,410 | 1,883,221 | 11,606 | 6.9 | 1,752,461 |
| Kansas | 17,443 | 186,633 | 2,205 | 12.6 | 4.8 | 4,345 | 2.33 | 0.46 | 253,108 | 64,549 | 1,835,815 | 7,245 | 11.2 | 1,529,144 |
| Kentucky | 53,981 | 559,541 | 4,268 | 7.9 | 6.2 | 10,753 | 1.92 | 1.49 | 84,965 | 34,287 | 369,540 | 4,043 | 11.8 | 326,122 |
| Louisiana | 14,207 | 435,693 | 4,852 | 34.2 | 29.1 | 20,489 | 4.70 | 3.99 | 104,135 | 7,052 | 225,903 | 2,165 | 30.7 | 154,856 |
| Maine | 4,586 | 63,715 | 104 | 2.3 | 1.3 | 152 | 0.24 | 0.10 | 19,073 | 7,337 | 192,888 | 43 | 0.6 | 191,869 |
| Maryland | 14,561 | 268,381 | 249 | 1.7 | 1.3 | 861 | 0.32 | 0.24 | 53,510 | 9,441 | 184,120 | 431 | 4.6 | 175,931 |
| Massachusetts | 5,410 | 90,678 | 338 | 6.2 | 4.0 | 554 | 0.61 | 0.36 | 17,182 | 6,795 | 135,900 | 585 | 8.6 | 124,200 |
| Michigan | 35,558 | 328,120 | 3,577 | 10.1 | 4.4 | 7,955 | 2.42 | 0.78 | 81,927 | 95,801 | 1,456,176 | 4,336 | 4.5 | 1,390,269 |
| Minnesota | 59,011 | 983,972 | 3,214 | 5.4 | 2.5 | 6,862 | 0.70 | 0.29 | 195,559 | 141,582 | 2,831,640 | 3,187 | 2.3 | 2,767,900 |
| Mississippi | 20,810 | 394,011 | 1,775 | 8.5 | 5.9 | 6,573 | 1.67 | 1.01 | 112,430 | 19,951 | 554,820 | 1,540 | 7.7 | 508,440 |
| Missouri | 73,467 | 857,751 | 6,009 | 8.2 | 4.7 | 12,937 | 1.48 | 0.87 | 313,892 | 118,144 | 1,358,657 | 7,305 | 6.2 | 1,274,649 |
| Montana | 4,744 | 122,383 | 302 | 6.4 | 3.1 | 1,002 | 0.82 | 0.58 | 290,550 | 9,899 | 98,990 | 117 | 1.2 | 97,820 |
| Nebraska | 14,348 | 182,941 | 1,176 | 8.2 | 1.9 | 2,880 | 1.57 | 0.39 | 464,765 | 94,424 | 1,145,912 | 1,845 | 1.9 | 1,124,201 |
| Nevada | 1,715 | 96,802 | 144 | 8.4 | 7.6 | 344 | 0.36 | 0.33 | 74,735 | 390 | 16,265 | 6 | 1.5 | 15,840 |
| New Hampshire | 4,930 | 66,792 | 24 | 0.5 | 0.5 | 43 | 0.06 | 0.06 | 10,775 | 193 | 4,601 | 3 | 1.5 | 4,543 |
| New Jersey | 5,599 | 133,722 | 609 | 10.9 | 7.5 | 783 | 0.59 | 0.35 | 16,400 | 5,579 | 206,825 | 588 | 10.5 | 184,251 |
| New Mexico | 5,212 | 73,453 | 164 | 3.1 | 2.7 | 330 | 0.45 | 0.38 | 40,118 | 2,003 | 26,917 | 60 | 3.0 | 26,192 |
| New York | 28,398 | 534,497 | 5,253 | 18.5 | 7.4 | 8,171 | 1.53 | 0.61 | 283,181 | 90,633 | 1,694,879 | 5,189 | 5.7 | 1,598,839 |
| North Carolina | 24,931 | 276,310 | 481 | 1.9 | 1.4 | 1,277 | 0.46 | 0.31 | 7,245 | 18,951 | 283,865 | 182 | 1.0 | 280,672 |
| North Dakota | 13,367 | 231,058 | 1,121 | 8.4 | 7.3 | 3,769 | 1.63 | 1.44 | 165,591 | 4,014 | 61,380 | 61 | 1.5 | 60,387 |
| Ohio | 39,680 | 363,895 | 3,037 | 7.7 | 3.7 | 7,045 | 1.94 | 0.76 | 79,857 | 94,360 | 1,235,244 | 8,193 | 8.7 | 1,128,438 |
| Oklahoma | 15,652 | 262,670 | 2,693 | 17.2 | 10.4 | 6,562 | 2.50 | 1.63 | 169,703 | 22,272 | 305,692 | 1,674 | 7.5 | 280,841 |
| Oregon | 18,399 | 271,365 | 832 | 4.5 | 3.0 | 2,200 | 0.80 | 0.48 | 161,117 | 19,080 | 381,826 | 536 | 2.7 | 370,766 |
| Pennsylvania | 34,353 | 593,208 | 1,281 | 3.7 | 1.7 | 2,038 | 0.34 | 0.14 | 147,696 | 79,207 | 1,674,677 | 1,502 | 1.9 | 1,640,511 |
| Rhode Island | 1,419 | 17,043 | 52 | 3.7 | 2.3 | 76 | 0.45 | 0.23 | 2,306 | 1,858 | 37,160 | 270 | 14.5 | 31,760 |
| South Carolina | 11,761 | 156,750 | 390 | 3.3 | 2.7 | 1,048 | 0.67 | 0.50 | 18,412 | 5,421 | 109,750 | 222 | 4.1 | 103,610 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| South Carolina | 11,761 | 156,750 | 390 | 3.3 | 2.7 | 1,048 | 0.67 | 0.50 | 18,412 | 5,421 | 109,750 | 222 | 4.1 | 103,610 |
| South Dakota | 19,949 | 301,423 | 1,851 | 9.3 | 6.3 | 5,416 | 1.80 | 1.16 | 282,342 | 20,312 | 340,200 | 1,356 | 6.7 | 331,864 |
| Tennessee | 43,353 | 517,503 | 3,215 | 7.4 | 5.7 | 7,780 | 1.50 | 1.14 | 196,164 | 34,307 | 446,458 | 8,064 | 23.5 | 334,974 |
| Texas | 29,091 | 496,628 | 5,536 | 19.0 | 15.6 | 22,569 | 4.54 | 3.43 | 225,246 | 20,220 | 674,250 | 7,234 | 35.8 | 322,506 |
| Utah | 3,678 | 39,252 | 308 | 8.4 | 2.4 | 649 | 1.65 | 0.35 | 83,696 | 18,193 | 297,304 | 218 | 1.2 | 293,776 |
| Vermont | 6,007 | 130,133 | 649 | 10.8 | 4.9 | 1,190 | 0.91 | 0.29 | 56,182 | 15,891 | 606,302 | 1,167 | 7.3 | 562,441 |
| Virginia | 25,006 | 352,493 | 891 | 3.6 | 3.5 | 2,112 | 0.84 | 0.60 | 100,021 | 1,008 | 1,799 | 71 | 7.0 | 1,696 |
| Washington | 8,004 | 146,705 | 379 | 4.7 | 2.4 | 1,009 | 0.69 | 0.39 | 127,064 | 15,807 | 237,105 | 490 | 3.1 | 229,755 |
| West Virginia | 21,018 | 223,194 | 425 | 2.0 | 2.0 | 877 | 0.39 | 0.39 | 10,974 | 6 | 133 | 0 | 0.0 | 133 |
| Wisconsin | 16,807 | 358,716 | 2,028 | 12.1 | 1.7 | 3,748 | 1.04 | 0.15 | 579,217 | 205,533 | 4,316,193 | 4,553 | 2.2 | 4,220,580 |
| Wyoming | 2,674 | 87,824 | 211 | 7.9 | 4.4 | 662 | 0.75 | 0.56 | 190,648 | 4,300 | 64,500 | 159 | 3.7 | 62,115 |
| Alaska | 98 | 762 | 1 | 1.0 | 0.7 | 3 | 0.39 | 0.16 | 120 | 103 | 2,316 | 0 | 0.0 | 2,316 |
| Hawaii | 920 | 38,088 | 107 | 11.6 | 11.4 | 584 | 1.53 | 1.43 | 1,918 | 74 | 7,893 | 44 | 59.5 | 5,335 |
| Puerto Rico | 7,684 | 197,992 | 769 | 10.0 | 9.3 | 1,519 | 0.77 | 0.67 | 16,728 | 1,397 | 66,338 | 204 | 14.6 | 56,795 |
| Virgin Islands | 35 | 4,374 | 14 | 40.0 | 40.0 | 22 | 0.50 | 0.50 | 0 | 0 | 0 | 0 | 0.0 | 0 |
| Totals | 984,576 | 14,168,909 | 81,226 | 8.2 | 4.6 | 214,331 | 1.51 | 0.77 | 6,702,832 | 1,696,920 | 30,693,440 | 103,987 | 6.1 | 27,301,134 |

[1] Percent of herd and cattle blood tests only.

[2] Percent of herd and cattle infection in States conducting brucellosis ring tests calculated on basis of total blood tests and one half of the BRT negative herds and cattle.

The total number of BRT negative herds and cattle are divided in half due to the fact that ring tests are conducted in most of the States on a semiannual basis.

| | Fiscal year 1958 | Fiscal year 1959 |
|---|---|---|
| Blood tests: | | |
| Herds tested | 1,176,601 | 984,576 |
| Cattle tested | 16,251,440 | 14,168,909 |
| Infected herds found | 108,560 | 81,226 |
| Percent of herds infected [1] | 9.2 | 8.2 |
| Reactors found | 260,322 | 214,331 |
| Percent of cattle infected [1] | 1.6 | 1.5 |
| Reactors slaughtered | 254,458 | 203,495 |
| Percent of reactors slaughtered | 97.7 | 94.9 |
| Calves vaccinated | 6,276,910 | 6,702,832 |
| Certification: | | |
| Counties certified during year | 490 | 436 |
| States certified during year | [2] 9 | 5 |
| Total counties certified at end of year | 1,217 | 1,653 |
| Total States certified at end of year [2] | 16 | 21 |
| Herds under supervision | 2,867,519 | 2,994,212 |
| Cattle under supervision | 51,693,159 | 54,454,911 |

[1] Based on results of blood tests only. If those herds and cattle that were negative to the brucellosis ring test were included, the percent of infected herds would be 5.3 in 1958 compared to 4.6 in 1959 and percent of cattle infected would be 0.88 compared to 0.77 in 1959.

[2] Includes Puerto Rico.

*g.* Brucellosis eradication obligations for fiscal years 1956 through 1960 (estimated) follow:

| Fiscal year | Operating costs | Indemnities | Total |
|---|---|---|---|
| A. Federal funds: [1] | | | |
| 1956 | $14,125,249 | $6,060,351 | $20,185,600 |
| 1957 | 16,576,862 | 4,422,720 | 20,999,582 |
| 1958 | 18,492,681 | 3,759,095 | 22,251,776 |
| 1959 | 17,819,467 | 2,410,383 | 20,229,850 |
| 1960 (estimated) | 14,937,100 | 1,700,000 | 16,637,100 |
| B. Funds provided by cooperating States and counties: | | | |
| 1956 | 11,595,852 | 4,134,627 | 15,730,479 |
| 1957 | 12,159,444 | 3,682,118 | 15,841,562 |
| 1958 | 13,183,201 | 3,522,744 | 16,705,945 |
| 1959 | 14,620,684 | 2,444,277 | 17,064,961 |
| 1960 (estimated) | 12,968,000 | 1,990,000 | 14,958,000 |

[1] For fiscal years 1956 through 1958 includes funds transferred from Commodity Credit Corporation. Beginning in fiscal 1959 Federal financing has been provided entirely under the appropriation, "Salaries and expenses, ARS."

*h.* Figure 21 and tables VI to VIII show other data relative to the brucellosis eradication program.

3. *Scabies eradication.*—*a.* Field employees trained in diagnostic methods: A training course at Iowa State College was attended by State and Federal inspectors conducting scabies-eradication work in Iowa, Illinois, Kansas, Missouri, Nebraska, Oklahoma, South Dakota, and Texas. Members of the college faculty, State regulatory officials, and Department representatives participated as instructors. The course provides field employees with the most recent information concerning scabies problems; and trains them in the use of effective diagnostic methods and equipment.

*b.* More sheep with psoroptic scabies found. A comparison of program activities for fiscal years 1958 and 1959 follows:

| | Fiscal year 1958 | Fiscal year 1959 |
|---|---|---|
| Sheep inspected | 9,500,782 | 10,848,946 |
| Sheep dipped | 356,854 | 309,609 |
| Infected sheep located | 57,405 | 68,626 |
| Infected flocks | 726 | 736 |
| States reporting sheep scabies | 24 | 24 |
| Counties reporting sheep scabies | 300 | 276 |

Indiana and Ohio instituted compulsory dipping of all sheep moved through public sales. With increased field inspection and proper treatment of exposed and infected flocks, there is encouraging progress in the scabies program. Table IX shows program activities by States and figure 22 illustrates areas of infection.

*c.* Infestations of psoroptic cattle scabies continue to be limited: In February 1959, a Federal quarantine was placed upon three counties in Kansas. Following careful inspections and appropriate treatment of all flocks in these counties, the quarantine was lifted on all but one county.

4. *Cattle fever tick eradication required fewer dippings.*—The tick eradication force conducted 2,097,587 inspections and dippings in fiscal year 1959 as compared with 2,831,784 in 1958 and 1,931,902 in 1957. During fiscal year 1959, 15 horses and 15 cattle which had strayed from Mexico into the inspection zone were caught by Department inspectors. Five of the cattle were found to be tick-infested.

FIGURE 21

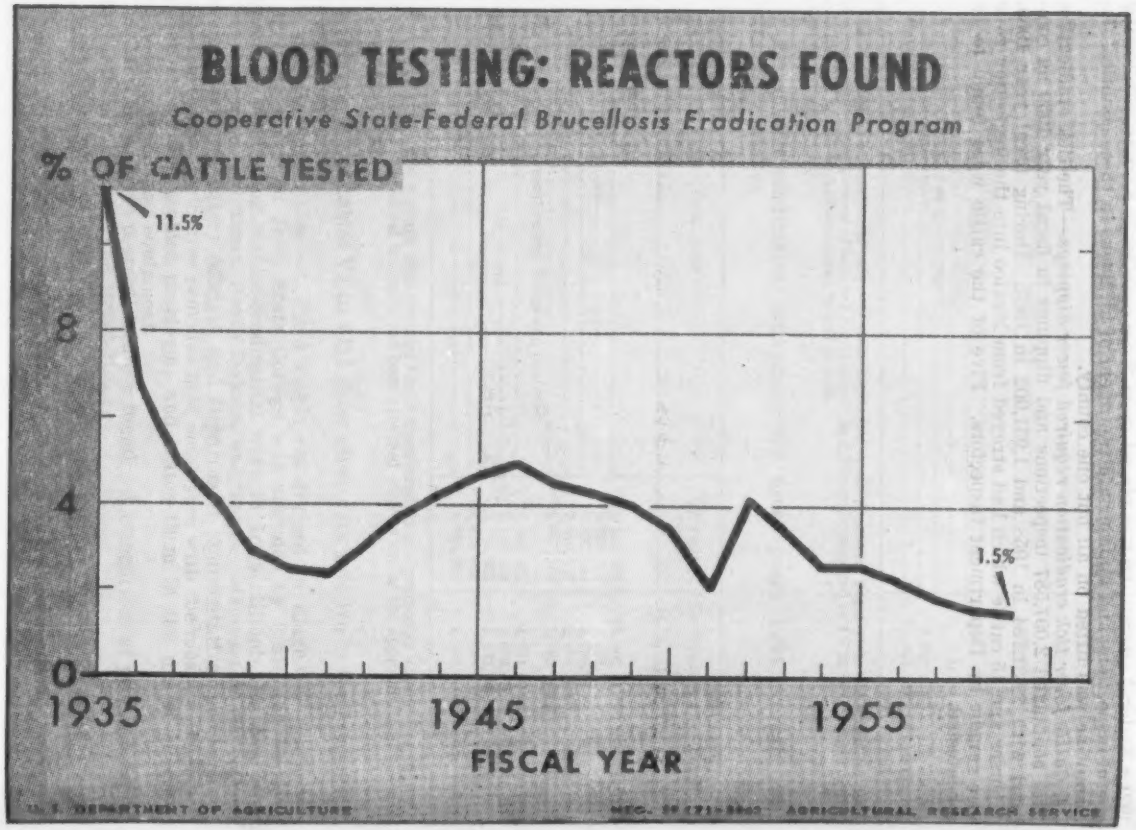

BLOOD TESTING: REACTORS FOUND
Cooperative State-Federal Brucellosis Eradication Program
% OF CATTLE TESTED
11.5%
8
4
1.5%
0
1935
1945
1955
FISCAL YEAR
U. S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE

TABLE VI.—*Brucellosis eradication, fiscal year 1959*

| State | Federal | | | State | | |
|---|---|---|---|---|---|---|
| | Indemnity payments | Operating cost | Total | Indemnity payments | Operating cost | Total |
| Alabama | $64,725 | $340,572 | $405,297 | | $100,000 | $100,000 |
| Arizona | 19,650 | 135,318 | 154,968 | $10,000 | 41,832 | 51,832 |
| Arkansas | 123,695 | 622,756 | 746,451 | | 220,000 | 220,000 |
| California | 151,055 | 571,810 | 722,865 | 500,000 | 990,374 | 1,490,374 |
| Colorado | 24,564 | 235,402 | 259,966 | | 26,363 | 26,363 |
| Connecticut | 5,036 | 41,071 | 46,107 | 25,000 | 143,337 | 168,337 |
| Delaware | 684 | 17,874 | 18,558 | 2,500 | 25,000 | 27,500 |
| District of Columbia and regional business offices | | 1,827,988 | 1,827,988 | | | |
| Florida | 19,658 | 301,847 | 321,505 | 45,729 | 246,648 | 292,377 |
| Georgia | 91,910 | 600,667 | 692,577 | 160,000 | 500,900 | 660,900 |
| Idaho | 32,069 | 326,445 | 358,514 | 7,500 | 167,500 | 175,000 |
| Illinois | 105,220 | 283,707 | 388,927 | 238,625 | 814,338 | 1,052,963 |
| Indiana | 102,663 | 408,805 | 511,468 | | 621,870 | 621,870 |
| Iowa | 150,037 | 688,855 | 838,892 | 200,000 | 1,087,000 | 1,287,000 |
| Kansas | 19,525 | 411,467 | 430,992 | | 200,000 | 200,000 |
| Kentucky | 131,622 | 409,185 | 540,807 | | 300,000 | 300,000 |
| Louisiana | 178,222 | 541,016 | 719,238 | 50,000 | 312,000 | 362,000 |
| Maine | 3,858 | 67,182 | 71,040 | 12,000 | 95,000 | 107,000 |
| Maryland | 8,297 | 295,318 | 303,615 | 45,000 | 172,034 | 217,034 |
| Massachusetts | 13,165 | 159,254 | 172,419 | 20,000 | 120,000 | 140,000 |
| Michigan | 177,460 | 483,663 | 661,123 | 2,000 | 398,274 | 400,274 |
| Minnesota | 9,648 | 685,824 | 695,472 | 59,000 | 411,210 | 470,210 |
| Mississippi | 81,047 | 449,419 | 530,466 | | 164,850 | 164,850 |
| Missouri | 134,470 | 630,189 | 764,659 | 250,000 | 916,917 | 1,166,917 |
| Montana | | 376,613 | 376,613 | | 175,000 | 175,000 |
| Nebraska | 64,577 | 678,709 | 743,286 | 15,000 | 300,000 | 315,000 |
| Nevada | 8,827 | 206,050 | 214,877 | | 71,704 | 71,704 |
| New Hampshire | 708 | 40,908 | 41,616 | 4,500 | 64,608 | 69,108 |
| New Jersey | 20,110 | 135,697 | 155,807 | 90,000 | 117,920 | 207,920 |
| New Mexico | 6,693 | 176,665 | 183,358 | 6,000 | 50,000 | 56,000 |
| New York | | 232,348 | 232,348 | | 1,156,795 | 1,156,795 |
| North Carolina | 22,173 | 172,061 | 194,234 | 15,000 | 116,827 | 131,827 |
| North Dakota | 21,222 | 239,792 | 261,014 | | 132,000 | 132,000 |
| Ohio | | 266,446 | 266,446 | | 296,000 | 296,000 |
| Oklahoma | 38,827 | 354,259 | 393,086 | | 130,000 | 130,000 |
| Oregon | 16,632 | 348,383 | 365,015 | 25,000 | 253,740 | 278,740 |
| Pennsylvania | 55,812 | 364,353 | 420,165 | 240,000 | 610,000 | 850,000 |
| Rhode Island | 438 | 14,812 | 15,250 | 11,000 | 38,696 | 49,696 |
| South Carolina | 18,032 | 197,359 | 215,391 | 18,000 | 109,500 | 127,500 |
| South Dakota | 65,904 | 279,390 | 345,294 | 40,000 | 300,000 | 340,000 |
| Tennessee | 165,964 | 687,101 | 853,065 | | 471,200 | 471,200 |
| Texas | | 270,234 | 270,234 | | 142,818 | 142,818 |
| Utah | 15,285 | 226,881 | 242,166 | | 75,826 | 75,826 |
| Vermont | 20,977 | 150,002 | 170,979 | 30,000 | 120,000 | 150,000 |
| Virginia | 47,550 | 336,673 | 384,223 | | 325,000 | 325,000 |
| Washington | 22,855 | 343,413 | 366,268 | 49,000 | 116,875 | 165,875 |
| West Virginia | 5,925 | 200,057 | 205,982 | 8,988 | 111,972 | 120,960 |
| Wisconsin | 96,259 | 647,085 | 743,344 | 179,435 | 1,003,862 | 1,183,297 |
| Wyoming | 6,589 | 189,526 | 196,115 | | 85,000 | 85,000 |
| Alaska | 75 | | 75 | | | |
| Hawaii | 5,925 | 15,932 | 21,857 | 40,000 | 75,000 | 115,000 |
| Puerto Rico | 34,744 | 133,084 | 167,828 | 45,000 | 94,894 | 139,894 |
| Total | 2,410,383 | 17,819,467 | 20,229,850 | 2,444,277 | 14,620,684 | 17,064,961 |

TABLE VII.—*Statement of comparative brucellosis testing herds and cattle under supervision, fiscal years 1935 to 1959, inclusive*

| Fiscal year | Blood tests | | | | Milk ring tests | | | | Under supervision (as of June 30 yearly) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Herds | Cattle | Reactor cattle | | Herd tests | Estimated cattle represented | Suspicious herd tests | | Herds | Cattle |
| | | | Number | Percent | | | Number | Percent | | |
| 1935 | 212,482 | 3,317,760 | 381,010 | 11.5 | | | | | 187,109 | 2,936,347 |
| 1936 | 470,788 | 6,674,709 | 457,104 | 6.8 | | | | | 449,644 | 5,780,418 |
| 1937 | 630,917 | 8,021,167 | 397,864 | 5.0 | | | | | 719,452 | 7,877,612 |
| 1938 | 671,310 | 7,837,443 | 324,532 | 4.1 | | | | | 1,035,454 | 9,447,137 |
| 1939 | 724,613 | 7,591,398 | 219,165 | 2.9 | | | | | 1,372,410 | 11,111,643 |
| 1940 | 590,393 | 6,937,428 | 171,953 | 2.5 | | | | | 1,615,755 | 12,315,329 |
| 1941 | 677,544 | 7,465,254 | 182,075 | 2.4 | | | | | 1,883,914 | 13,932,693 |
| 1942 | 591,835 | 6,891,219 | 209,238 | 3.0 | | | | | 2,105,294 | 15,627,027 |
| 1943 | 392,636 | 5,185,228 | 197,329 | 3.8 | | | | | 2,199,535 | 16,616,522 |
| 1944 | 386,266 | 5,235,912 | 226,079 | 4.3 | | | | | 2,254,235 | 17,326,128 |
| 1945 | 395,236 | 5,213,458 | 243,050 | 4.7 | | | | | 2,307,585 | 17,545,638 |
| 1946 | 389,814 | 4,876,866 | 245,786 | 5.0 | | | | | 2,360,699 | 17,870,154 |
| 1947 | 454,789 | 5,133,814 | 232,293 | 4.5 | | | | | 2,249,118 | 17,589,018 |
| 1948 | 533,936 | 5,434,792 | 232,199 | 4.3 | | | | | 2,291,760 | 18,128,318 |
| 1949 | 563,501 | 5,671,347 | 226,691 | 4.0 | | | | | 2,165,364 | 17,126,480 |
| 1950 | 618,801 | 5,974,721 | 208,298 | 3.5 | | | | | 2,299,556 | 18,527,624 |
| 1951 | 565,155 | 5,640,836 | 172,322 | 3.1 | | | | | 2,324,621 | 19,197,790 |
| 1952 [3] | 670,738 | 7,491,327 | 314,260 | 4.2 | 503,759 | 9,396,255 | 135,967 | 27.0 | 2,149,078 | 21,496,113 |
| 1953 | 660,344 | 7,860,870 | 268,348 | 3.4 | 670,532 | 12,234,810 | 175,909 | 26.2 | 2,102,545 | 21,607,676 |
| 1954 | 696,207 | 9,002,109 | 235,666 | 2.6 | 932,003 | 16,633,034 | 242,914 | 26.1 | 2,298,284 | 24,572,013 |
| 1955 | 984,541 | 14,186,241 | 365,247 | 2.6 | 1,200,898 | 20,444,994 | 278,847 | 23.2 | 2,585,277 | 31,948,708 |
| 1956 | 1,154,962 | 16,754,195 | 366,524 | [1] 1.25 | 1,727,581 | 28,361,691 | 255,503 | 14.8 | 2,737,483 | 42,582,071 |
| 1957 | 1,170,906 | 15,913,396 | 280,253 | [2] 0.96 | 1,866,444 | 31,481,474 | 212,580 | 11.4 | 2,697,184 | 50,858,016 |
| 1958 | 1,176,601 | 16,251,440 | 260,322 | [2] .88 | 1,750,510 | 30,927,215 | 164,224 | 9.4 | 2,867,519 | 51,693,159 |
| 1959 | 984,576 | 14,168,909 | 214,331 | [2] .77 | 1,696,920 | 30,693,440 | 103,987 | 6.1 | 2,994,212 | 54,454,911 |

[1] Percent of infection in States conducting brucellosis ring tests calculated on basis of total blood tests and total BRT negative tests for the last 6 months.

[2] Percent of infection in States conducting brucellosis ring tests calculated on basis of total blood tests and ½ of total BRT negative tests for fiscal years 1957, 1958, and 1959.

[3] Became official part of program fiscal year 1952.

TABLE VIII.—*Average appraisal, salvage, and indemnities in brucellosis eradication work, fiscal year 1935 to 1959 inclusive*

| Fiscal year | Reactors on which indemnity was paid | Percent purebred cattle | Average appraisal | Average salvage | Indemnity paid by | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Federal | | State | |
| | | | | | Number of States in which paid | Average amount | Number of States paying indemnity | Average amount |
| 1935 | (1) | 18.0 | $56.86 | $19.87 | (1) | $24.29 | 1 | $27.99 |
| 1936 | 439,041 | 11.0 | 70.65 | 27.44 | 48 | 26.86 | 2 | 20.57 |
| 1937 | 352,092 | 9.0 | 70.67 | 27.94 | [2] 48 | 26.45 | 5 | 19.25 |
| 1938 | 278,619 | 9.0 | 80.37 | 32.07 | [2] 47 | 26.69 | 10 | 20.36 |
| 1939 | 182,285 | 9.0 | 97.17 | 33.97 | 47 | 20.00 | 28 | 26.09 |
| 1940 | 119,660 | 11.0 | 90.85 | 34.99 | 36 | 14.96 | 36 | 17.12 |
| 1941 | 129,225 | 10.0 | 93.28 | 37.68 | 39 | 15.19 | 39 | 17.19 |
| 1942 | 127,274 | 9.0 | 99.19 | 52.06 | 41 | 15.83 | 41 | 17.71 |
| 1943 | 91,065 | 10.0 | 128.03 | 64.87 | [3] 39 | 16.77 | [3] 39 | 18.63 |
| 1944 | 81,677 | 10.0 | 143.34 | 59.75 | [3] 40 | 19.30 | [3] 40 | 22.54 |
| 1945 | 89,766 | 10.0 | 139.35 | 56.63 | [3] 39 | 19.25 | [3] 39 | 22.14 |
| 1946 | 82,586 | 10.0 | 149.65 | 68.64 | [3] 39 | 19.34 | [3] 39 | 22.07 |
| 1947 | 62,115 | 11.0 | 178.25 | 82.93 | [3] 40 | 20.64 | [3] 40 | 23.44 |
| 1948 | 51,111 | 11.0 | 203.98 | 107.38 | [3] 39 | 21.17 | [3] 39 | 24.44 |
| 1949 | 43,237 | 11.0 | 256.46 | 132.11 | [3] 37 | 23.41 | [3] 37 | 25.67 |
| 1950 | 34,759 | 11.0 | 237.68 | 114.21 | [3] 31 | 22.75 | [3] 31 | 25.16 |
| 1951 | 21,079 | 11.0 | 285.16 | 164.52 | [3] 27 | 21.74 | [3] 27 | 24.27 |
| 1952 | 29,322 | 8.0 | 334.68 | 189.39 | [3] 25 | 24.05 | [3] 25 | 26.03 |
| 1953 | 23,456 | 8.0 | 276.52 | 122.52 | [3] 24 | 22.32 | [3] 24 | 25.59 |
| 1954 | 39,485 | 6.0 | 190.90 | 89.18 | [3] 25 | 11.71 | [3] 25 | 20.64 |
| 1955 | 139,159 | 5.0 | 189.36 | 87.38 | [3] 41 | 20.65 | [3] 26 | 20.85 |
| 1956 | 231,687 | 4.9 | 203.63 | 84.58 | [3] 40 | 23.21 | [3] 25 | 22.33 |
| 1957 | 166,737 | 5.3 | 201.29 | 84.98 | [3] 43 | 22.29 | [3] 28 | 19.64 |
| 1958 | 146,843 | 5.6 | 233.48 | 113.19 | [4] 44 | 22.12 | [4] 30 | 19.58 |
| 1959 | 94,836 | 6.0 | 288.50 | 148.94 | [5] 45 | 21.74 | [5] 30 | 21.79 |

[1] Figures not available.
[2] Plus Puerto Rico.
[3] Plus Puerto Rico and Alaska.
[4] Plus Puerto Rico, Alaska, Hawaii, and Virgin Islands.
[5] Plus Puerto Rico, Hawaii, and Virgin Islands.

TABLE IX.—*Psoroptic sheep scabies, fiscal year 1959*

| As reported from respective States | Number of infected counties | Number of infected flocks | Number of infected sheep | Total inspections | Total dippings |
|---|---|---|---|---|---|
| Alabama | 0 | 0 | 0 | 0 | 0 |
| Alaska | 0 | 0 | 0 | 0 | 0 |
| Arizona | 0 | 0 | 0 | 514,039 | 0 |
| Arkansas | 4 | 11 | 1,039 | 33,734 | 4,000 |
| California | 0 | 0 | 0 | 654,012 | 0 |
| Colorado | 0 | 0 | 0 | 58,955 | 3,190 |
| Connecticut | 0 | 0 | 0 | 0 | 0 |
| Delaware | 0 | 0 | 0 | 602 | 0 |
| Florida | 0 | 0 | 0 | 670 | 0 |
| Georgia | 0 | 0 | 0 | 0 | 0 |
| Hawaii | 0 | 0 | 0 | 0 | 0 |
| Idaho | 0 | 0 | 0 | 43,221 | 0 |
| Illinois | 51 | 307 | 21,936 | 44,176 | 16,797 |
| Indiana | 12 | 14 | 683 | 2,212 | 639 |
| Iowa | 43 | 94 | 6,294 | 24,547 | 10,032 |
| Kansas | 12 | 30 | 5,309 | 48,253 | 10,343 |
| Kentucky | 2 | 2 | 152 | 2,099 | 1,864 |
| Louisiana | 0 | 0 | 0 | 342,596 | 44,107 |
| Maine | 0 | 0 | 0 | 0 | 0 |
| Maryland | 2 | 4 | 196 | 457 | 822 |
| Massachusetts | 0 | 0 | 0 | 0 | 0 |
| Michigan | 8 | 13 | 2,324 | 15,477 | 7,370 |
| Minnesota | 13 | 21 | 6,101 | 6,101 | 1,070 |
| Mississippi | 0 | 0 | 0 | 43,076 | 515 |
| Missouri | 37 | 83 | 6,016 | 27,889 | 11,839 |
| Montana | 0 | 0 | 0 | 0 | 0 |
| Nebraska | 4 | 5 | 4,446 | 5,337 | 24,825 |
| Nevada | 0 | 0 | 0 | 139,093 | 0 |
| New Hampshire | 0 | 0 | 0 | 0 | 0 |
| New Jersey | 3 | 5 | 127 | 10,210 | 304 |
| New Mexico | 1 | 1 | 1,690 | 1,290,647 | 15,217 |
| New York | 11 | 13 | 637 | 637 | 730 |
| North Carolina | 0 | 0 | 0 | 0 | 0 |
| North Dakota | 1 | 1 | 1,200 | 2,700 | 800 |
| Ohio | 30 | 48 | 4,996 | 4,999 | 5,114 |
| Oklahoma | 1 | 1 | 235 | 2,044 | 470 |
| Oregon | 0 | 0 | 0 | 21,627 | 54 |
| Pennsylvania | 4 | 5 | 127 | 1,195 | 1,027 |
| Rhode Island | 0 | 0 | 0 | 0 | 0 |
| South Carolina | 0 | 0 | 0 | 0 | 0 |
| South Dakota | 4 | 8 | 411 | 374,445 | 5,066 |
| Tennessee | 14 | 31 | 1,966 | 26,542 | 2,142 |
| Texas | 3 | 3 | 327 | 6,849,754 | 132,690 |
| Utah | 0 | 0 | 0 | 47,066 | 0 |
| Vermont | 0 | 0 | 0 | 0 | 0 |
| Virginia | 11 | 25 | 1,483 | 2,725 | 1,512 |
| Washington | 0 | 0 | 0 | 59,143 | 0 |
| West Virginia | 4 | 8 | 660 | 25,144 | 2,241 |
| Wisconsin | 1 | 3 | 271 | 428 | 933 |
| Wyoming | 0 | 0 | 0 | 123,094 | 4,196 |
| Total | 276 | 736 | 68,626 | 10,848,946 | 309,609 |

Goats inspected in Arizona, 5,367; California, 204; Texas, 347,818; Arkansas, 1,550; total, 354,939. Goats dipped in Texas, 2,113.

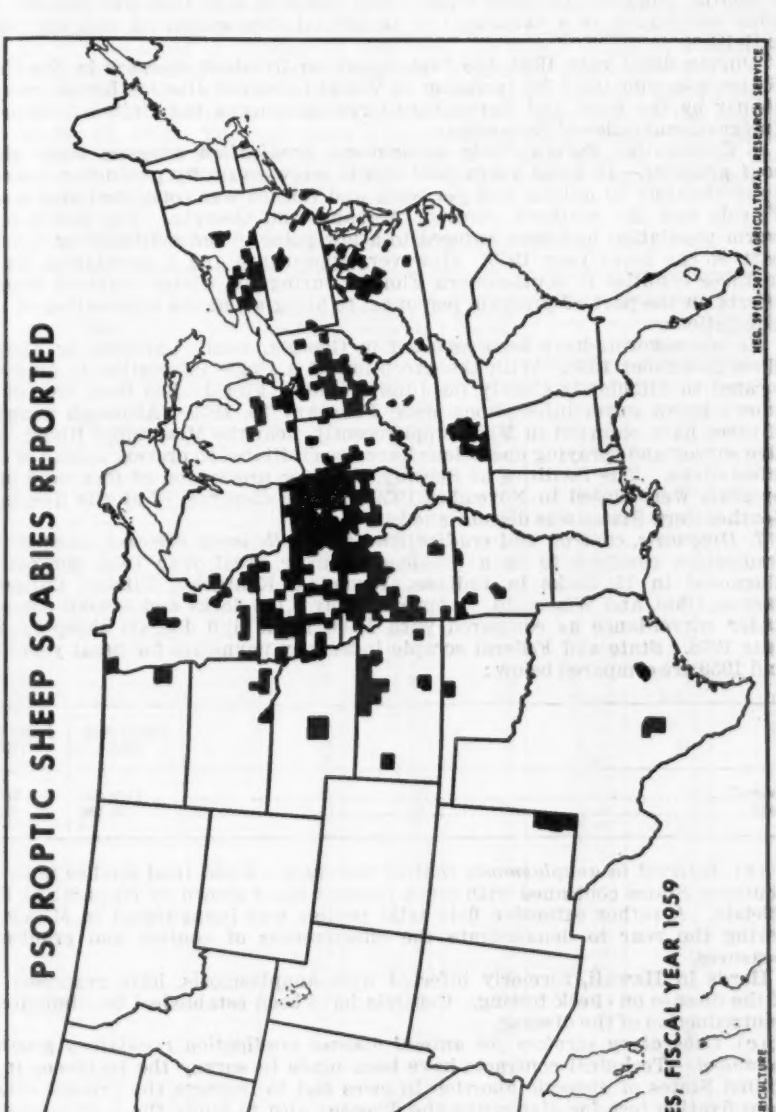

PSOROPTIC SHEEP SCABIES REPORTED
COUNTIES, FISCAL YEAR 1959
U.S. DEPARTMENT OF AGRICULTURE
NEG. 31(8)-5977 AGRICULTURAL RESEARCH SERVICE

FIGURE 22

5. *Animal disease reporting.*—The National Report of Animal Diseases was instituted on a monthly basis with the beginning of fiscal year 1959. The first 6 months' summary of those reports was issued in May 1959, and has met with wide acceptance as a valuable tool in animal disease control and eradication activities.

During fiscal year 1959, the first report on livestock diseases in the United States was submitted for inclusion in World Livestock Disease Report compiled jointly by the Food and Agriculture Organizations of the United Nations and International Office of Epizootics.

6. *Cooperative Federal-State screw-worm eradication program made significant progress.*—In fiscal years 1959 sterile screw-worm fly production averaged approximately 50 million flies per week and release was conducted over most of Florida and the southern parts of Alabama and Georgia. The native screw-worm population had been reduced to a low point in the southeast by the early part of the fiscal year 1959. However, appearance and a population buildup in three counties in southeastern Florida during the winter required intensive efforts on the part of program personnel to bring about the elimination of these infestations.

No screwworms have been reported in Georgia, South Carolina, or Alabama since November 1958. With the exception of a single infestation in an animal located in Highlands County on June 17, 1959, Florida has been free of any known screw-worm infestations since February 19, 1959. Although a number of cases have occurred in Mississippi recently, near the Mississippi River, intensive survey and spraying operations have been initiated to prevent spread of these infestations. The facilities at Sebring, Fla., for production of flies used in the program were closed in November 1959 and the dispersal of sterile flies in the Southeastern States was discontinued.

7. *Diagnosis, control, and eradication of miscellaneous diseases.*—(*a*) Scrapie eradication continue to be a problem. During fiscal year 1959, scrapie was diagnosed in 11 flocks in Indiana, Wyoming, Kentucky, Illinois, California, Oregon, Ohio, and Wisconsin. Approximately 1,126 flocks and 548,663 sheep are under surveilliance as compared with 1,500 flocks and 489,000 sheep in fiscal year 1958. State and Federal scrapie indemnity payments for fiscal years 1958 and 1959 are compared below:

| | Fiscal year 1958 | Fiscal year 1959 |
|---|---|---|
| Federal | $109,525 | $293,039 |
| State | 36,286 | 113,563 |

(*b*) *Interest in anaplasmosis control increases.*—Field trial studies in several Southern States continued with much interest being shown by cooperating State officials. A rather extensive field trial project was inaugurated in Mississippi during the year to demonstrate the effectiveness of control and eradication measures.

Herds in Hawaii, formerly infected with anaplasmosis, have remained free of the disease on check testing. Controls have been established to eliminate the reintroduction of the disease.

(*c*) *Laboratory services for animal disease eradication regulatory programs expanded.*—Technical contracts have been made to survey the incidence in the United States of enzootic abortion in ewes and to improve the present complement-fixation test for diagnosing the disease; also to study the epidemiology of leptospirosis and its relationship to the brucellosis program.

Increased efforts were made to standardize laboratory procedures. One means was to send brucellosis check-test samples to all laboratories performing official tests. In addition, four regional workshops for serologists were held in October and November 1958, in Beltsville, Md.; Baton Rouge, La.; Provo, Utah; and Ames, Iowa; in order to stress uniformity of laboratory procedures.

At the regulatory laboratory at Beltsville, the desiccation of *Brucella abortus* strain 19 and *B. abortus* strain 119 cultures was started. These cultures are supplied to commercial companies in this form to produce antigen and vaccine. This method greatly facilitates the shipment of cultures and insures their arrival in a more satisfactory condition for the production of antigen and vaccine. The production of *B. melitensis* strain 16 M antigen was begun early in 1959. This

antigen is being used by the interim diagnostic laboratory at Ames for investigative work.

(*d*) *Vesicular exanthema of swine.*—No cases of this disease have been identified for some time. The last quarantined area has recently been released. The Department announced on October 22, 1959, that the 7-year cooperative Federal-State campaign to eradicate the disease was successful (see table X).

(*e*) *Foot-and-mouth disease eradication.*—There have been no known cases of foot-and-mouth disease in Mexico since it was declared free of the disease on December 31, 1954. The operations of the Mexican-United States Commission for the Prevention of Foot-and-Mouth Disease have been greatly reduced and are limited chiefly to field and laboratory investigations of suspected cases of foot-and-mouth disease.

TABLE X.—*National status on control of garbage-feeding, June 1959*

| State | Premises feeding garbage | Number of swine fed garbage | Premises feeding cooked garbage | Number of swine fed | | Monthly inspection (percent) |
|---|---|---|---|---|---|---|
| | | | | Cooked garbage | Raw garbage | |
| Alabama | 408 | 9,855 | 408 | 9,855 | 0 | 92 |
| Arizona | 90 | 8,406 | 81 | 8,229 | 177 | 99 |
| Arkansas | 257 | 9,760 | 250 | 9,684 | 76 | 95 |
| California | 265 | 178,800 | 265 | 178,800 | 0 | 100 |
| Colorado | 84 | 36,041 | 82 | 35,988 | 53 | 100 |
| Connecticut | 114 | 16,452 | 29 | 4,832 | 11,620 | 95 |
| Delaware | 23 | 1,830 | 22 | 1,750 | 80 | 100 |
| Florida | 759 | 46,359 | 715 | 44,970 | 1,389 | 100 |
| Georgia | 426 | 28,460 | 414 | 28,144 | 316 | 100 |
| Idaho | 76 | 4,955 | 76 | 4,955 | 0 | 68 |
| Illinois | 177 | 21,626 | 177 | 21,626 | 0 | 100 |
| Indiana | 74 | 8,503 | 74 | 8,503 | 0 | 98 |
| Iowa | 51 | 9,325 | 50 | 9,075 | 250 | 100 |
| Kansas | 196 | 9,869 | 194 | 9,837 | 32 | 100 |
| Kentucky | 271 | 10,234 | 268 | 10,173 | 61 | 99 |
| Louisiana | 634 | 12,383 | 634 | 12,383 | 0 | 100 |
| Maine | 119 | 10,444 | 114 | 10,032 | 412 | 61 |
| Maryland | 106 | 15,263 | 104 | 15,220 | 43 | 100 |
| Massachusetts | 432 | 106,476 | 340 | 96,923 | 9,553 | 96 |
| Michigan | 95 | 13,724 | 95 | 13,724 | 0 | 84 |
| Minnesota | 90 | 13,637 | 90 | 13,637 | 0 | 100 |
| Mississippi | 94 | 8,658 | 84 | 8,287 | 371 | 93 |
| Missouri | 63 | 12,887 | 63 | 12,887 | 0 | 90 |
| Montana | 27 | 4,132 | 27 | 4,132 | 0 | 100 |
| Nebraska | 46 | 6,762 | 46 | 6,762 | 0 | 100 |
| Nevada | 26 | 3,337 | 26 | 3,337 | 0 | 100 |
| New Hampshire | 106 | 8,991 | 92 | 8,452 | 539 | 61 |
| New Jersey | 277 | 151,493 | 275 | 151,433 | 60 | 100 |
| New Mexico | 121 | 6,320 | 101 | 5,896 | 424 | 100 |
| New York | 230 | 33,652 | 225 | 33,444 | 208 | 100 |
| North Carolina | 607 | 25,542 | 607 | 25,542 | 0 | 100 |
| North Dakota | 11 | 1,018 | 11 | 1,018 | 0 | 100 |
| Ohio | 304 | 22,783 | 304 | 22,783 | 0 | 92 |
| Oklahoma | 424 | 13,071 | 419 | 12,961 | 110 | 71 |
| Oregon | 34 | 7,460 | 34 | 7,460 | 0 | 100 |
| Pennsylvania | 241 | 45,445 | 241 | 45,445 | 0 | 100 |
| Rhode Island | 53 | 9,666 | 53 | 9,666 | 0 | 100 |
| South Carolina | 709 | 17,600 | 694 | 17,287 | 313 | 87 |
| South Dakota | 31 | 3,413 | 31 | 3,413 | 0 | 100 |
| Tennessee | 213 | 11,161 | 208 | 11,115 | 46 | 90 |
| Texas | 931 | 74,076 | 791 | 67,517 | 6,559 | 76 |
| Utah | 60 | 6,051 | 57 | 5,978 | 73 | 100 |
| Vermont | 62 | 5,010 | 55 | 4,418 | 592 | 63 |
| Virginia | 398 | 26,332 | 398 | 26,332 | 0 | 98 |
| Washington | 79 | 13,632 | 76 | 13,538 | 94 | 100 |
| West Virginia | 113 | 5,376 | 111 | 5,283 | 93 | 63 |
| Wisconsin | 56 | 10,590 | 56 | 10,590 | 0 | 100 |
| Wyoming | 23 | 1,291 | 22 | 1,273 | 18 | 100 |
| Total | 10,086 | 1,108,151 | 9,589 | 1,074,589 | 33,562 | (1) |

[1] 27, 100 percent; 21 less than 100 percent.

NOTE.—95.1 premises feeding cooked garbage; 97 percent of swine fed cooked garbage; 3 percent of swine fed raw garbage. 39 States reporting 90 to 100 percent monthly inspection.

8. *Interstate transportation of livestock.*—(*a*) Inspection prevents spread of disease. Livestock at public stockyards come from widely separated areas. Veterinarians and trained livestock inspectors examine for disease all animals

that pass through these stockyards. The inspectors also supervise the dipping of cattle and sheep for scabies, and the cleaning and disinfecting of pens, cars and trucks that have contained diseased animals. This inspection offers an excellent opportunity to examine a cross section of the livestock population of the country almost daily at a minimum cost. The spread of disease to other herds and premises is frequently prevented by the prompt application of appropriate sanitary control measures. Instances are not uncommon in which the detection of disease in a shipment at a public stockyard is the owner's first knowledge of the existence of infection on his premises.

(*b*) The following statistics show the comparative volume of activities at the public stockyards in the fiscal years 1958 and 1959:

| | Fiscal year 1958 | Fiscal year 1959 |
|---|---|---|
| Number of stockyards operating | 59 | 58 |
| Number of cities in which located | 57 | 56 |
| Animals inspected: | | |
| Cattle | 23,817,304 | 21,977,605 |
| Sheep | 11,626,207 | 11,908,863 |
| Swine | 27,474,827 | 28,926,309 |
| Total animals inspected | 62,918,338 | 62,812,778 |
| Animals dipped for scabies: | | |
| Cattle | 609 | 21,495 |
| Sheep | 341,924 | 388,490 |
| Swine immunized against hog cholera for movement to farms for stocker and feeder purposes | 164,471 | 151,613 |
| Total animals dipped and immunized | 507,004 | 561,519 |
| Health certificates issued for shipments | 260,246 | 275,694 |
| Infectious cars received | 955 | 909 |
| Cars cleaned and disinfected [1] | 1,538 | 2,317 |
| Trucks cleaned and disinfected | 32,452 | 34,683 |
| Diseased animals received | 352,417 | [2] 434,971 |

[1] Includes requests by States and railroads.
[2] Includes 91,620 brucellosis, 10,089 tuberculosis, and 186 paratuberculosis reactors; and 333,076 other diseased animals.

(*c*) *Twenty-eight-hour law enforced.*—The 28-hour law is designed to prevent the overconfinement of animals shipped in interstate commerce by common carrier. Waybills and records maintained by carriers and others are examined daily and apparent violations are reported at stations where Federal livestock inspectors are stationed. Inspections are also made from time to time at approximately 900 feed, water, and rest stations in 48 States to determine whether the facilities and equipment are maintained for the safe and humane handling of the species of animals for which they are designed.

During the year the Department received 409 reports of alleged violations of the 28-hour law and recommended prosecution of 188 cases. Penalties of $26,061 and costs were imposed in 229 violations.

(*d*) *Regulatory laws.*—All reports of violations of the Federal regulations in the interstate movement of diseased animals are fully investigated. During fiscal year 1959, notices of 345 violations of the animal quarantine laws were received. Prosecution was recommended in 236 cases. Disposition was made by the courts of 110 cases, and fines totaling $15,051 were imposed.

In 53 cases forwarded to the Department of Justice prosecution was not instituted, but letters of warning were sent to the parties involved.

*Animal quarantine*

9. *Foreign animal and poultry diseases excluded.*—During fiscal year 1959, freedom from destructive diseases was maintained through continuing application of appropriate sanitary controls, including inspection and quarantine of imported animals and poultry at ports of entry and careful handling of imported products at ports of entry and at approved destination processing establishments.

*Inspections of animal importations at high level.*—A total of 1,149,815 animal importations were inspected by veterinarians at ports of entry during fiscal

year 1959, an increase of 23,281 over fiscal year 1958. Certain animals and poultry were quarantined at designated quarantine stations.

The following table lists the animals, including poultry, inspected and passed for entry during fiscal year 1959.

| | Canadian border ports | Mexican border ports | Air and ocean ports | Total | Refused entry |
|---|---|---|---|---|---|
| Cattle | 613,438 | 456,792 | 1,322 | 1,071,552 | 17,985 |
| Swine | 8,490 | ---------- | 67 | 8,557 | 72 |
| Sheep | 33,489 | ---------- | ---------- | 33,489 | 1 |
| Goats | 38 | ---------- | ---------- | 38 | 1 |
| Equines | 26,474 | 7,615 | 1,861 | 35,950 | 3,819 |
| Zoo animals | ---------- | ---------- | 229 | 229 | 10 |
| Total animals | 681,929 | 464,407 | 3,479 | 1,149,815 | 21,888 |
| Poultry | 3,264 | ---------- | 9,318 | 12,582 | 1,963 |

In addition, 2,086 animals (cattle, sheep, swine, goats) were inspected and passed into the U.S. Virgin Islands from the British Virgin Islands for immediate slaughter.

Equines imported from overseas and Mexico are required to show negative dourine and glanders blood tests. These diseases have been eradicated from the United States. A total of 21,758 serum samples were tested: of these, 202 were positive or suspicious for dourine and 57 positive or suspicious for glanders, a disease which is transmissible to man.

10. *Newcastle disease detected in quarantined poultry.*—An importation of 264 partridges from New Delhi, India, was destroyed when the shipment was found to be infected with Newcastle disease. The strain isolated by the diagnostic laboratory was a highly lethal type. Prompt and efficient action at the Department's animal quarantine station at Clifton, N.J., prevented spread of the disease to other quarantined poultry.

11. *Inspection of imported animal products continues heavy.*—To prevent the introduction of foot-and-mouth disease, rinderpest, anthrax, and other infectious diseases, imported animal products are inspected at ports of entry and shipped under seal to approved destination establishments for processing under supervision. Such importations in fiscal year 1959 included:

| | *Million pounds* |
|---|---|
| Hides and skins | 364.5 |
| Bones and bonemeal | 141.9 |
| Wool and hair | 391.3 |
| Animal casings | 12.4 |
| Miscellaneous products | 119.0 |
| Total | 1,029.1 |

Railroad cars, trucks, and premises involved in the transportation and handling of restricted products were disinfected.

12. *Surveillance maintained at air and ocean ports of entry.*—The opening of the St. Lawrence Seaway to foreign traffic and air flights from European countries to west coast ports by the polar route have presented new problems in maintaining adequate supervision.

During the year, 26,488 pounds (6,138 lots) of prohibited or restricted meats were seized and disposed of when found aboard foreign ships or aircraft or intercepted at entry ports. This is a sharp reduction over similar seizures made last year due in part to an intensive educational program designed to acquaint the traveling public with prohibitions against such materials.

13. *Marked increase in inspection of livestock for export.*—During fiscal year 1959, 22,248 animals were inspected and certified for export to 55 foreign countries, exclusive of Canada and Mexico, an increase of 7,474 over 1958. Accommodations aboard transporting vessels were examined to assure humane handling and safe transport. The greatest demand for livestock from the United States is in high-quality breeding cattle (19,019), with approximately 85 percent going to South American countries.

14. *Purebred animals certified for duty-free entry.*—Inspectors at ports of entry identified and issued certificates as to purity of breeding as follows:

| | Fiscal years | |
|---|---|---|
| | 1958 | 1959 |
| Horses | 721 | 658 |
| Cattle | 23,220 | 23,218 |
| Sheep | 725 | 542 |
| Swine | 105 | 204 |
| Goats | 1 | 0 |
| Dogs | 635 | 688 |
| Cats | 17 | 6 |
| Total | 25,424 | 25,316 |

15. Licenses under the Virus-Serum-Toxin Act permitted the production of 125 different biological products as of June 30, 1959. Several products are manufactured in more than one form, so that the total number of biological products was 195. The total number of outlines of production processed during the year was 370. Labels and circulars for licensed biological products reviewed and processed during the fiscal year totaled 2,490 sets, as compared with 2,516 sets in fiscal year 1958. There were 31 permits issued for importation of boliogical products and 199 for importation or transportation of organisms and vectors. The progress of the work is reflected in the following table:

| Item | Fiscal year 1958 | Fiscal year 1959 |
|---|---|---|
| Establishments producing anti-hog-cholera serum and hog-cholera virus | 24 | 21 |
| Production (cubic centimeters): | | |
| Serum (completed product) | 586,346,036 | 618,668,968 |
| Virus: | | |
| Simultaneous | 8,452,258 | 7,488,335 |
| Hyperimmunizing | 97,622,584 | 115,739,804 |
| Inoculating | 218,840 | 582,117 |
| Animal inspections | 801,170 | 906,022 |
| Tests supervised | 3,331 | 3,339 |
| Establishments producing hog-cholera vaccine | 21 | 21 |
| Production (doses) | 36,786,739 | 44,068,354 |
| Establishments producing other biologics | 48 | 48 |
| Production: | | |
| Cubic centimeters | 808,669,968 | 930,487,913 |
| Milligrams | 457,075,281 | 837,040,232 |
| Units | 450,315,300 | 561,830,000 |
| Bulk cubic centimeters for export | ---------- | 517,000 |
| Products destroyed (all kinds): | | |
| Cubic centimeters | 17,678,799 | 18,100,531 |
| Milligrams | 22,109,422 | 22,893,792 |
| Units | 172,500 | 727,000 |
| Export certificates issued | 741 | 602 |

Some 1,740 samples of biological products and subcultures of organisms were collected and forwarded to Beltsville laboratories for testing: 1,439 samples of brucellosis vaccine were tested of which 9.5 percent was found unsatisfactory and destroyed. The destroyed vaccine represented 4,892,549 cubic centimeters, or enough to treat 974,509 calves. Also, 552 purity and safety tests on hog-cholera virus were made; no causative organisms of swine erysipelas were found.

The following table shows the volume of biological products certified for export:

| Products [1] | Fiscal year 1958 | Fiscal year 1959 |
|---|---|---|
| Anti-hog-cholera serum (cubic centimeters) | 29,168,000 | 26,225,000 |
| Other serums (cubic centimeters) | 439,000 | 299,000 |
| Hog-cholera virus (cubic centimeters) | 641,000 | 733,000 |
| Antitoxins (units) | 667,000 | 525,000 |
| Bacterins | 5,244,000 | 3,821,000 |
| Diagnostics | 34,000 | |
| Vaccines | 16,671,000 | 21,926,000 |

[1] Doses, unless otherwise indicated.

The number of handlers operating under the marketing agreement and order were as follows:

| | Fiscal year 1958 | Fiscal year 1959 |
|---|---|---|
| Producer-handlers | 31 | 33 |
| Distributor-handlers or equivalent, including wholesale producers and handlers | 265 | 273 |

## Meat Inspection

### JUSTIFICATION OF THE ESTIMATES

#### CURRENT ACTIVITIES

Federal meat inspection assures that meat and meat products will be clean, sound, and wholesome for human consumption, free from adulteration, and truthfully labeled. The work consists of inspection of animals and carcasses at the time of slaughter; inspection at all stages of preparation of meat and meat-food products to assure sanitary handling; destruction of condemned products; administration of humane slaughter law; enforcement of measures that insure informative labeling; inspection of meat and meat-food products offered for importation; and a system of certification to assure acceptance of domestic meats in foreign trade. Meat and meat-food products are examined for compliance with specifications of governmental purchasing agencies; reimbursements are received for the cost of such services. Reimbursements are also received from meatpacking establishments for the cost of overtime work performed at their request. Continuous inspection of the manufacture of process or renovated butter is included under this activity.

#### SELECTED EXAMPLES OF RECENT PROGRESS

1. *Number of plants demanding Federal meat inspection continues to increase.*—At the close of the fiscal year 1959, 1,334 plants located in 546 cities were under inspection. Based on current applications for the inspection service and inquiries concerning the inspection requirements, it is estimated that by the end of the current fiscal year there will be an increase of over 3 percent in the number of plants to be serviced and a 4-percent increase in the number of cities and towns where inspectors will have to be assigned.

A further increase in fiscal year 1961 is anticipated as shown by the following tabulation:

| | At close of fiscal years | | | | |
|---|---|---|---|---|---|
| | Actual 1957 | Actual 1958 | Actual 1959 | Estimated 1960 | Estimated 1961 |
| Number of establishments covered | 1,244 | 1,300 | 1,334 | 1,380 | 1,420 |
| Number of cities and towns in which establishments were located | 502 | 518 | 546 | 571 | 596 |

Establishments continued to use extra work shifts to speed up production. Many meatpackers who previously were satisfied with a local business now have their products inspected so that they are eligible to move freely in interstate commerce. Chainstore merchandising and institutional buying by both military and civilian agencies require delivery of federally inspected meats.

2. *Continued activity in meatpacking plant renovation and construction.*—During the fiscal year 1959 there was accelerated activity in the remodeling of meatpacking plants and the planning of new plants. Drawings and specifications were reviewed for 1,058 new or remodeled structures. This is the largest number of projects ever handled in a fiscal year. There were 772 projects approved representing approximately $71 million of construction and 286 projects which were not approved because they did not meet requirements. Included in the approved projects were 51 new establishments in cities where Federal meat inspection was not then maintained. The completion of this construction will result in improving the facilities of the meatpacking industry to better service the future livestock economy.

3. *Scope of operations.*—The following tables reflect the scope of operations by fiscal years.

*Meat inspection activities*

[In thousands]

| | Actual, 1957 | Actual, 1958 | Actual, 1959 | Estimated | |
|---|---|---|---|---|---|
| | | | | 1960 | 1961 |
| Antemortem inspection: | | | | | |
| Animals passed | 104,181 | 97,450 | 99,272 | 107,194 | 107,366 |
| Animals suspected | 164 | 149 | 143 | 190 | 180 |
| Animals condemned | 6 | 4 | 4 | 6 | 4 |
| Total animals inspected | 104,351 | 97,603 | 99,419 | 107,390 | 107,550 |
| Postmortem inspection: | | | | | |
| Carcasses passed for food purposes: | | | | | |
| Entire carcass | 97,490 | 90,894 | 92,067 | 99,443 | 99,606 |
| After removal and condemnation of portions of carcass affected with various diseases and conditions | 6,560 | 6,445 | 7,109 | 7,640 | 7,700 |
| Subtotal | 104,050 | 97,339 | 99,176 | 107,083 | 107,296 |
| Carcasses condemned and destroyed for food purposes | 295 | 260 | 239 | 300 | 250 |
| Total carcasses inspected | 104,345 | 97,599 | 99,415 | 107,383 | 107,546 |
| Percentage of carcasses condemned in whole or in part | 6.6 | 6.9 | 7.4 | 7.4 | 7.4 |
| Liver condemnations in cattle and calves: | | | | | |
| Cattle and calves passed for food purposes included above | 27,795 | 25,125 | 22,378 | 22,800 | 23,200 |
| Number of livers condemned for food purposes | 2,992 | 2,706 | 2,488 | 2,508 | 2,552 |
| Percentage of livers condemned for food purposes | 10.7 | 10.7 | 11.1 | 11.0 | 11.0 |
| Inspection of animals by species: | | | | | |
| Antemortem inspection (animals): | | | | | |
| Cattle | 20,145 | 18,581 | 17,322 | 18,300 | 18,500 |
| Calves | 7,769 | 6,646 | 5,140 | 6,000 | 6,000 |
| Sheep and lambs | 13,919 | 12,876 | 12,805 | 13,800 | 13,900 |
| Goats | 116 | 171 | 192 | 170 | 170 |
| Horses [1] | 163 | 126 | 88 | 80 | 80 |
| Swine | 62,240 | 59,204 | 63,872 | 69,040 | 69,000 |
| Total | 104,352 | 97,604 | 99,419 | 107,390 | 107,550 |
| Postmortem inspection (carcasses): | | | | | |
| Cattle | 20,142 | 18,579 | 17,321 | 18,298 | 18,499 |
| Calves | 7,768 | 6,644 | 5,139 | 5,998 | 6,000 |
| Sheep and lambs | 13,918 | 12,876 | 12,804 | 13,798 | 13,799 |
| Goats | 116 | 171 | 192 | 170 | 170 |
| Horses [1] | 162 | 126 | 88 | 80 | 80 |
| Swine | 62,239 | 59,203 | 63,871 | 69,039 | 68,998 |
| Total | 104,345 | 97,599 | 99,415 | 107,383 | 107,546 |

[1] Horses are slaughtered and their meat is identified as such. Their meat is handled and prepared in separate establishments from those handling cattle, calves, sheep, swine, and goats.

*Meat and meat food products prepared and processed under supervision classified by type of product*

[In thousands of pounds]

| | Fiscal year 1957 | Fiscal year 1958 | Fiscal year 1959 |
|---|---|---|---|
| Placed in cure: | | | |
| Beef | 162,948 | 158,949 | 155,122 |
| Pork | 3,491,198 | 3,298,386 | 3,417,983 |
| Other | 1,449 | 1,166 | 966 |
| Smoked and/or dried: | | | |
| Beef | 60,477 | 53,446 | 47,773 |
| Pork | 2,515,708 | 2,333,875 | 2,464,387 |
| Cooked meat: | | | |
| Beef | 87,705 | 87,674 | 86,661 |
| Pork | 313,338 | 295,319 | 293,721 |
| Other | 3,222 | 3,086 | 2,604 |
| Sausage: | | | |
| Fresh finished | 237,881 | 223,195 | 245,263 |
| To be dried or semidried | 142,619 | 134,505 | 129,012 |
| Frankfurters, weiners | 663,400 | 649,665 | 649,654 |
| Other | 624,880 | 622,793 | 623,893 |
| Loaf, headcheese, chile con carne | 207,542 | 204,895 | 203,366 |
| Steaks, chops, roast | 652,392 | 558,367 | 541,315 |
| Meat extract | 2,243 | 2,117 | 2,551 |
| Sliced bacon | 980,138 | 911,016 | 995,346 |
| Sliced other | 201,119 | 235,205 | 261,472 |
| Hamburger | 221,002 | 186,463 | 184,075 |
| Miscellaneous meat products | 90,079 | 114,613 | 161,251 |
| Lard: | | | |
| Rendered | 2,050,770 | 1,863,983 | 2,040,845 |
| Refined | 1,636,910 | 1,426,331 | 1,516,963 |
| Oleo stock | 84,667 | 65,708 | 68,112 |
| Edible tallow | 242,140 | 288,050 | 347,576 |
| Rendered pork fat: | | | |
| Rendered | 102,927 | 92,461 | 92,508 |
| Refined | 51,878 | 50,937 | 43,500 |
| Compound containing animal fat | 688,310 | 688,083 | 706,710 |
| Oleomargarine containing animal fat | 76,049 | 70,815 | 85,153 |
| Canned products | 2,167,722 | 2,138,840 | 2,227,630 |
| Horsemeat products: | | | |
| Cured | 7,072 | 4,463 | 1,501 |
| Chopped | 15,578 | 15,107 | 12,418 |
| Edible oil | | | 22 |
| Canned horsemeat | 20,707 | 12,484 | 8,832 |
| Total | 17,804,070 | 16,791,997 | 17,618,185 |

*Meat and meat food products condemned on reinspection and destroyed, fiscal year 1959*

[Pounds]

| Cause | Beef | Veal | Mutton and lamb | Goat meat | Pork | Horse-meat | Total |
|---|---|---|---|---|---|---|---|
| Tainted, sour, or putrid | 3,106,732 | 52,363 | 54,596 | 2,731 | 4,368,984 | 43,323 | 7,628,729 |
| Rancid | 242,186 | 9,022 | 2,662 | | 392,886 | 200 | 646,956 |
| Molds or foreign odors | 564,044 | 3,401 | 8,401 | 754 | 572,522 | 568 | 1,149,690 |
| Unsound canned goods | 353,748 | 460 | 6,469 | | 239,746 | 2,984 | 603,407 |
| Unclean or contaminated | 7,734,620 | 114,561 | 135,443 | 31,651 | 8,095,903 | 14,741 | 16,126,919 |
| Miscellaneous | 102,181 | 7,910 | 18,628 | 40 | 234,284 | 4,196 | 367,239 |
| Total | 12,103,511 | 187,717 | 226,199 | 35,176 | 13,904,325 | 66,012 | 26,522,940 |

*Materials other than meat rejected for use, fiscal year 1959*

[Pounds]

| Product | Cause of rejection | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Noncompliance with Federal regulations | Contamination | Odor, color, or taste | Sour and/or moldy | Unsound canned goods | Unacceptable equipment | Miscellaneous | Total |
| Spices and seasoning | 5,952 | 177,454 | | 18,560 | | | 903 | 202,869 |
| Flour and grain | 1,365 | 35,772 | | 1,318 | | | | 38,455 |
| Dairy and eggs | 4,527 | 9,850 | 529 | | | | | 14,906 |
| Fruits and vegetables | 47,873 | 132,667 | 6,500 | 19,868 | 2,814 | | 2,098 | 211,820 |
| Soaps, oils, and cleaners | 6,967 | | 17,816 | 350 | | | | 25,133 |
| Equipment | 26,044 | 80 | 2,000 | | | 300 | | 28,424 |
| Equipment, pieces | (5,000) | (476) | | | | (62,564) | (220) | (68,260) |
| Casings | 625 | | | 342 | | | | 967 |
| Curing agents | 800 | 2,785 | | | | | | 3,585 |
| Miscellaneous | 1,616 | 680 | | | | | | 2,296 |
| Total | 95,769 | 359,288 | 26,845 | 40,438 | 2,814 | 300 | 3,001 | 528,455 |

*Examination of meat and meat food products for other Government agencies (reimbursable)*

[In thousand pounds]

| Branch of Government | Fiscal year 1957 | Fiscal year 1958 | Fiscal year 1959 |
|---|---|---|---|
| Department of Agriculture: | | | |
| Agricultural Marketing Service | 15,919 | 3,369 | 3,231 |
| Commodity Stabilization Service | 111,112 | 21,537 | 19,490 |
| Forest Service | 237 | 237 | 222 |
| Department of Commerce: | | | |
| Civil Aeronautics Administration | 24 | 5 | |
| Maritime Administration | 17 | | |
| Department of the Interior: | | | |
| Fish and Wildlife | 167 | 153 | 147 |
| Bureau of Indian Affairs | 158 | 436 | 1,082 |
| Department of Health, Education, and Welfare: Public Health Service | 2,412 | 2,408 | 2,354 |
| Department of Justice: Bureau of Prisons | 131 | 130 | 142 |
| Department of the Army | 204,148 | 183,932 | 163,581 |
| Coast Guard | 22 | 6 | 23 |
| Marine Corps | 17 | 2 | |
| Department of the Navy | 229,848 | 220,572 | 164,876 |
| General Services Administration | 784 | 267 | 169 |
| Veterans' Administration | 30,290 | 30,630 | 27,813 |
| Total | [1] 595,286 | [2] 463,684 | [3] 383,130 |

[1] Includes 4,323,000 pounds rejected.
[2] Includes 2,778,000 pounds rejected.
[3] Includes 3,740,000 pounds rejected.

*Summary of samples examined in laboratories for determination of adulteration or other objectionable conditions, fiscal year 1959*

| | Number examined | Reported adversely |
|---|---|---|
| Meat and meat food product | 24,866 | 3,796 |
| Edible fats and oils | 519 | 15 |
| Binders (cereal, dried skim milk, soya flour) | 1,834 | 28 |
| Seasonings (spices, flavorings) | 9,108 | 90 |
| Curing materials | 2,664 | 114 |
| Miscellaneous | 4,106 | 333 |
| Imports | 3,083 | 108 |
| Total | 46,180 | 4,404 |

*Examinations of labels and sketches*

| | Fiscal year 1958 | Fiscal year 1959 |
|---|---|---|
| Number of labels and sketches approved | 39,565 | 37,923 |
| Number of labels approved for imported meat | 1,116 | 1,240 |
| Number of labels and sketches refused approval | 3,247 | 3,316 |
| Total number of labels and sketches reviewed | 43,928 | 42,479 |

*Inspection of imported meat and meat-food products*

| Fiscal year: | *Pounds* |
|---|---|
| 1957 | 361,569,278 |
| 1958 | 477,506,265 |
| 1959 | 945,227,733 |
| 1960 (estimated) | 700,000,000 |

4. *Specimens of diseased tissue examined.*—During the past year 2,416 examinations of questionable material were made at the suggestion of inspectors. These included histopathological diagnoses, biological assays, serological identifications, bacteriological evaluations, and parasite viability determinations. A wide variety of pathological conditions were diagnosed. Many tests were also made to assure safety and acceptability of control procedures. Examinations by fiscal years follow.

| Fiscal year: | *Number* |
|---|---|
| 1957 | 1,657 |
| 1958 | 2,518 |
| 1959 | 2,416 |

5. *Exemption certificates issued to retail dealers and butchers.*—A retail dealer or butcher who holds a certificate of exemption may ship or transport interstate meat and meat-food products not bearing the mark of Federal meat inspection.

During the 1959 fiscal year 104 certificates of exemption were issued and 162 were cancelled. At the end of the fiscal year 609 exemption certificates were in effect.

6. *Work started on the development of humane slaughter methods.*—Shortly after passage in August 1958 of the act establishing the use of humane methods of slaughter of livestock as a policy of the United States, steps were taken to give effect to the new law. On February 27, 1959, the Secretary announced four methods of slaughter considered to be humane as recommended by the Federal Meat Inspection Service and the Humane Slaughter Advisory Committee. Each designation contains a description of the livestock handling methods to be used for each species. In developing the designations, field investigations were conducted in the United States and Canada; consultations were held with physiologists in the human and animal fields; and literature pertaining to the animal nervous systems was reviewed.

## Diseases of Animals and Poultry

*Project statement*

| Project | 1959 | 1960 (estimated) | 1961 (estimated) |
|---|---|---|---|
| Eradication of vesicular exanthema of swine [1] | [2] $1,020,432 | | |
| Transfers from Commodity Credit Corporation | [2] −990,807 | | |
| Reappropriation of prior year balances | −29,625 | | |
| Appropriation or estimate | | | |

[1] Represents obligations. Applied costs for 1959 are $1,012,565 and for 1960 are $41,976. The difference of $7,867 in 1959 reflects, primarily, adjustments in prior year obligations; the difference of $41,976 in 1960 reflects, primarily, the receipt of orders to complete the program that were placed in fiscal year 1959.

[2] Excludes return of $18,445 to Commodity Credit Corporation. For comparative purposes, obligations are shown under "Salaries and expenses, Agricultural Research Service, plant and animal disease and pest control," since the work is being financed from that appropriation beginning with 1960.

It is necessary to retain this item so that the Department will be in position to finance such emergency measures as may be necessary to confine and eradicate outbreaks of poultry and livestock diseases, such as foot-and-mouth disease, vesicular exanthema of swine, European fowl pest, etc., which are determined to constitute an emergency.

Dr. CLARKSON. That ends my discussion, Mr. Chairman, unless there are questions.

MEAT INSPECTION

Mr. WHITTEN. Last year we discussed possible change in the coverage of meat inspection activities. Have you done anything in that regard?

Dr. CLARKSON. We have gone over that very, very thoroughly, Mr. Chairman, in an effort to find those areas of work, if any, there be, that are being covered under this appropriation that need not be so covered. I think we have not made ourselves very clear in that we do a lot of specification examination work, or grading if you please, for other Government agencies or for private industry if they request it and pay for it. We have $1.6 million of reimbursements for that kind of work each year.

None of that kind of work is financed from this appropriation. We have scanned the program very carefully to make sure that that is the case.

Mr. WHITTEN. How many new positions have you added in the present fiscal year, and how many do you request in this budget for the coming fiscal year?

Dr. CLARKSON. Except for costs of employee health benefits, we are not requesting any change in the appropriation for the coming fiscal year and, as a matter of fact, the total number of positions that are financed from this appropriation will decline somewhat, due to increased cost. They will decline by 23 if I recall correctly.

INCREASE IN AVERAGE ANNUAL POSITIONS

Mr. WHITTEN. Throughout your section, throughout your operations, how many new positions are requested, how many new ones did you add during the present year, and how many do you contemplate, that is in your overall section?

Dr. CLARKSON. Can I furnish that for the record, sir?

Mr. WHITTEN. For salaries and expenses.

Mr. GRANT. For salaries and expenses, the increase in 1960 above 1959 is 149 and in 1961 there is a net increase of 55 above 1960. This is in terms of average annual positions.

Mr. WHITTEN. This 55 primarily involves the quarantine work?

Mr. GRANT. In research there is an increase of 390, primarily in connection with the staffing of the Ames Laboratory and with the increases for utilization and pesticide residue research. There is a decrease in the plant and animal disease and pest control item of 181, and a decrease of 23 in meat inspection. There is also a decrease of 131 due to elimination of the special fund for labor at field installations.

INCREASES FOR TRANSPORTATION AND EQUIPMENT

Mr. WHITTEN. The table on page 9 of the committee print shows a large increase in transportation and equipment. What is involved there?

Mr. GRANT. I'm sorry, Mr. Chairman, what was that item again?

Mr. WHITTEN. The committee print shows an increase of some $859,600. That amount is for equipment, and in transportation you have about a $200,000 increase.

Dr. SHAW. The new National Animal Disease Laboratory accounts for the increase in both items—the purchase of equipment for the Ames Laboratory and moving of the people from Beltsville to Ames. There are substantial increases for those reasons.

Dr. CLARKSON. There would be some increase in travel costs in plant quarantine also. We must send employees to the training center in New York. We have to pay for their transportation to New York and return to their official station.

UNAPPORTIONED BALANCE

Mr. WHITTEN. I notice from the report of the Bureau of the Budget, dated February 3, 1960, you have an unapportioned balance of $850,000. What does this cover?

Mr. GRANT. This is in the contingency fund for emergency operations. You recall that each year the appropriation act includes $1.5 million for emergency outbreaks of insects and plant diseases. As of the end of last December, $150,000 of that had been released for hoja blanca work, and $500,000 released for pink bollworm work, leaving $850,000 in reserve.

UNOBLIGATED BALANCE OF APPORTIONMENT

Mr. WHITTEN. Is there anything further to report here on the budget statement of December 31, 1959, showing an unobligated balance of approximately $2½ million. What is your explanation of that?

Dr. SHAW. One of the explanations is the large number of locations that we have, somewhere around 800. Nearly every location has an allocation. We can't predict exactly what the needs are going to be for each, or the total to be obligated by quarters. We had missed in total by that amount. However, there will always be some unobligated balance to avoid being reportable for having overobligated an allotment under an apportionment.

Mr. WHITTEN. Doctor, let us have the record clear. I am not complaining that you have some money on hand. I hoped you would say that you found you didn't need it.

Dr. SHAW. It is rather difficult to give an exact estimate quarter by quarter as we are required to do.

Mr. WHITTEN. In this field, I think that the 7 percent transferability of any of the items under a major head, is one of the most valuable things that we have. This is not an exact sort of thing, and where you need to move on and where you need to spread out, I think some degree of latitude is absolutely essential. We just want the explanation on that.

Dr. SHAW. In the middle of the year there is always a situation where funds may be set aside to meet emergencies that may come up. We postpone some needs in the early part of the year, and take care of them later.

Mr. WHITTEN. Are there any questions now?

NUMBER OF SHIFTS MEAT INSPECTORS WORK

Mr. SANTANGELO. Yes, Mr. Chairman. Can you tell us what you have been doing with respect to the shifts of the inspectors of the plants? I understand that you, at point, you had three shifts of meat inspectors and you have had some change in the program.

Dr. CLARKSON. Yes, sir.

Mr. SANTANGELO. Could you tell us what the program is?

Dr. CLARKSON. We had for quite a number of years a substantial number of plants where the company had three shifts on, working around the clock, and we put on only two shifts of inspectors. We charged the company for overtime for each of those shifts, either 3½ or 4 hours. Last year, we presented that problem to the committee, and the year before also. We thought that was a bad personnel practice because this is an every day, day in and day out, 12-hour shift, and we thought we ought to get them back on a basic 8-hour shift, and leave the overtime for those things which occur unexpectedly. So we have change quite a number of those assignments. At one time we had them all changed, I think now we have a few 11 and 12 hour shifts that have been reinstituted.

Mr. SANTANGELO. You have reinstituted the 11- and 12-hour shifts?

Dr. CLARKSON. It's my understanding we had to do that in a couple of instances because we just didn't have another inspector to send in.

Mr. SANTANGELO. What is your practice with respect to poultry inspection?

Dr. CLARKSON. Poultry inspection isn't in our unit, so I can't answer that.

Mr. SANTANGELO. Can anyone answer that?

Dr. SHAW. That would be in the Agricultural Marketing Service.

Mr. SANTANGELO. That's another section, Mr. Miller's section?

Dr. CLARKSON. Yes.

Mr. SANTANGELO. I received some complaints from the meat inspectors themselves. They felt that they would rather have the two shifts per day rather than the three shifts, because they have been accustomed to the amount of work and the income, and they feel it is a hardship on the three-shift basis. Could you tell me if you are going back to the two-shift basis?

Dr. CLARKSON. No, we are not going back to it willingly. We will only go back to it if we have no other alternative to meet the inspection needs. I quite sympathize with the position that the inspector finds himself in after having been assigned to such a shift for a period of time and then being taken off of it. His income is very materially reduced. But whether it is preferred or not, our experience is that a man just does not do his best work consistently when he is assigned 11 or 12 hours a day, day in and day out.

Mr. SANTANGELO. On a three-shift program, the Department is paying all the expenditures, but under a two-shift program the packers are sharing part of that cost?

Mr. CLARKSON. That is right.

ACCELERATION OF BRUCELLOSIS ERADICATION

Mr. NATCHER. Dr. Clarkson, proceeding as we are in the brucellosis program, how long would it take us to have all of our States in the certified, modified category?

Dr. CLARKSON. I would have to recalculate that, Mr. Natcher. Last year we estimated that on the basis of the level of expenditures that were contained in the 1959 budget, it would take an additional 5 years, which would make 6 years. Now we are not at that level, either from the standpoint of Federal expenditures or State expenditures. I am unable to calculate it now. I can give the problem to our specialists and see what their calculations would be, if you so desire.

Mr. NATCHER. I wish you would at this point in the record, Dr. Clarkson, place the approximate time that we would complete the program proceeding as we are at the present time.

Dr. CLARKSON. That is on the 1960 level?

Mr. NATCHER. On the 1960 level.

(The information requested follows:)

Proceeding at the 1960 Federal and State levels of financing of approximately $31.7 million, it is estimated that nationwide modified certified brucellosis area status could be attained by the end of fiscal year 1974.

Mr. NATCHER. Now for fiscal year 1961, we have in this particular bill some $15 million.

Dr. CLARKSON. $15,477,000.

Mr. NATCHER. $15,477,000 and that is based on the States putting up $14 million.

Dr. SHAW. $14,900,000.

Mr. NATCHER. Now, Dr. Clarkson, in your opinion, would it be better to increase the amount for brucellosis, speeding this program up, so that we could complete it in 5 years?

Dr. CLARKSON. Mr. Natcher, at any time that a disease or pest eradication program can be speeded up with effective use of moneys, it is cheaper in the long run. Now the appropriation of additional moneys is not the entire thing. It must move along with the complete cooperation and coordination of the States and of the livestock and dairy industries in those States, so that what is done today will be held tomorrow, and built upon, rather than to be disregarded by starting in somewhere else. If everything else is right, if everyone is ready, willing, and able to go to work, the more rapidly the job can be done, the less expensive it will be in the long run.

Mr. NATCHER. Dr. Clarkson, I believe someone has presented or will present to the committee a figure of $20 million per year, and assuming that this amount were appropriated, it is estimated that we would have the brucellosis program in the position that we would like to have it in the United States in a period of 5 or 6 years. Is that approximately correct as to the time, according to your investigation and knowledge of this program, Dr. Clarkson?

Dr. CLARKSON. It would be if the States also maintained their higher level of expenditures which they had in effect a couple of years ago. If they retain the current level, or if they drop further, the appropriation of additional Federal moneys will help but it will not accomplish the entire job.

Mr. NATCHER. Off the record.

(Discussion off the record.)

Mr. NATCHER. Thank you, Mr. Chairman.

Mr. WHITTEN. Following it up briefly, is this strictly a matched fund operation, I mean approximately 50–50?

Dr. CLARKSON. Taking the Nation as a whole, it has been pretty much so.

Mr. WHITTEN. In this operation, how many veterinarians are required and to what extent is this matter controlled by available personnel trained to do this inspection and testing?

Dr. CLARKSON. We have been able to overcome the shortage of veterinarians which plagued us for so many years by authority to make use of local practicing veterinarians who are acceptable to the Department for work in their own area as we come to it. We have variable numbers, from 3,000 to 5,000 of them, on the list at any one time. They are accredited veterinarians who are working under a form of contract with us to do assigned work in their own areas of practice when we come to those areas for work. With that arrangement, where additional professional help is needed, we are able to use our Federal staff and the States to use their staffs for the cleanup work, for the overall programing, for the difficult problems that arise, and for work in areas where there are no practicing veterinarians willing to do this work.

Mr. WHITTEN. I expressed the statement earlier that this subcommittee, in my opinion, was more or less having to stay under the overall budget, due to conditions beyond our own control. If, however, this program were to be enlarged, that is the funding of it, do the States have in sight, so far as you know, matching money. I know their legislatures meet at various times, some States one year, some other States another. I notice that you say that the States' efforts have dropped off considerably in 2 years, so what would be the outlook if perchance there were money here from the States. I believe you answered the veterinarians would be available as far as that is concerned.

Dr. CLARKSON. In 1954, when the Federal Government had something less than $4 million total, the States were putting in $12 million, and that had been going on for several years. Then when the Federal expenditures were raised to the order of $20 million, in the course of 4 years, the States in the aggregate raised theirs to $17 million. Now the States are back down to $14, 900,000, or about $15 million. I don't know whether they would raise theirs again if the Federal Government were to raise their expenditures. I know they are watching to see what will be done.

Mr. WHITTEN. If somebody else will do it, it will be less pressure on them?

Dr. CLARKSON. In one sense. In another sense, the State legislatures react, rather readily to the point—well, if the Federal Government is not going to continue on with it, we're not either. This is a most variable thing in regard to the States. I would not be able to predict what they will do. I know that in some cases I could feel confident and say that they will increase theirs, in others I would have no idea.

FUNDS FOR STATE COOPERATION

Mr. WHITTEN. I am sure that you hear from the State officials of various States. Do you have many of them saying that they have funds ready and urging you to increase your request for funds to match what they claim they will have? Do you have much of that?

Dr. CLARKSON. Yes, we have had quite a volume of that kind of presentation during this year. We have made a great many personal contacts. We have assurances that the States will increase their funds in cases where there is still a lot of work yet to be done, but whether the people who are talking with us are able to predict what the State legislatures will do, I have no idea.

Mr. WHITTEN. Would you be in a position, if the committee were to find it possible to go along in an increased amount, to hold that money until the particular States increased their funds to an equal amount? In other words, are you in a position to bargain with the applicant States, those that apply for increased impetus?

Dr. CLARKSON. Our best bargaining position comes in terms of a consistent year in and year out program. If we endeavor to hold this on a dollar for dollar matching, we will find that we will go ahead and get it all done in one State; but that State may be surrounded by four States in which nothing has been done, and then it will all have to be done over again in the first State.

Without that matching, our bargaining position with them is weakened, but I see no alternative but to work with each individual State on point-by-point basis as to the work that needs to be done in that State, and the fair share of it that needs to be undertaken by that State.

RESTRICTIONS ON INTERSTATE MOVEMENT OF CATTLE

Mr. ANDERSEN. Doctor, your comments lead me to ask your opinion. You just stated that we have certain groups of States absolutely clean, that is modified, certified brucellosis areas, and in some cases we will find a State, Tennessee for example, that is surrounded by States which haven't done too much work. Now would it not be a good idea if there would be some way we could declare a quarantine along the borders of these clear States or clean States, and prevent by law animals moving in from the other States until such time as those particular legislatures wake up and do something toward cleaning up their own area?

Dr. CLARKSON. We have done that, Mr. Andersen, in just the past 2 years.

Mr. ANDERSEN. Do you have the right to prevent such movements?

Dr. CLARKSON. Yes.

Mr. ANDERSEN. Why should infected cattle be permitted to move across the line, that is breeding cattle, move across the line from South Dakota and Iowa up into my State of Minnesota, which happens to have had enough foresight to try to clean out that disease, and perhaps imperil the breeders in Minnesota?

Dr. CLARKSON. They should not, and under our regulations, Mr. Andersen, the cattle from your State may move freely into the surrounding States because Minnesota is all certified.

Mr. ANDERSEN. But the others cannot?

Dr. CLARKSON. The others cannot.

Mr. ANDERSEN. Isn't there some way we can put a little more pressure on these other States to awaken them to their responsibility of doing something about getting more money to match funds and try to do a real job there?

Dr. CLARKSON. If I may say so, sir, I think enforcement of that Federal requirement is what now keeps those States interested in working on this program.

Mr. ANDERSEN. What I am driving at is, how could we make them more interested, Doctor, from the viewpoint of their own self interest? That is about the only thing that will do the job.

Dr. CLARKSON. I don't see any way in which we could prevent movement of cattle unless they are diseased or exposed so they carry disease. Our regulation is gaged to prevent that kind of movement. Now whether we have in all cases prevented it is always a question. I know that one cannot prevent these things 100 percent, so there will be some mistake made as long as any cattle are allowed to move.

Mr. ANDERSEN. I think you made the statement that here we will have a clean State, a comparatively clean State, surrounded by other States of doubtful character, that is referring to brucellosis, and it is very difficult to keep these clean areas clean when we have neighbors of that type next to us. Is that not a fact?

Dr. CLARKSON. Yes, sir.

Mr. ANDERSEN. We might as well be frank about it.

Dr. CLARKSON. Yes, sir; but I want to point out, too, Mr. Andersen, that there is still a good deal of work to be done in the certified States, because that, as has been mentioned, brings the level of disease down to not more than 1 percent of the cattle and not more than 5 percent of the herd.

Mr. ANDERSEN. That's correct.

Dr. CLARKSON. Those herds are identified and under our program of retesting even that low level of infection must then be gradually reduced.

Mr. ANDERSEN. Look at this map. I don't like the idea of my home county of Lincoln right next to the South Dakota line having a neighboring State in this particular regard, and I am going to leave it on the record, hoping that some of them will see it. Having a neighboring State that does not show better progress in relation to cleaning up brucellosis than does South Dakota brings this problem home to me. I am only two counties away from the State of Iowa, and both of them have little to be proud of, looking at that map. Personally, I think we should do all we can to encourage these people to do something in cooperating more with you. Thank you, Doctor.

Mr. WHITTEN. Mr. Horan?

### FUNDS REQUESTED FOR MEAT INSPECTION

Mr. HORAN. What did you ask the Budget for meat inspection?

Dr. CLARKSON. The Department estimate to the Bureau of the Budget was the same as for this fiscal year.

Mr. HORAN. What did you ask the Department?

Mr. GRANT. For meat inspection, the estimate by the Agricultural Research Service for 1961 was $22,062,700. The Department estimate was $21,562,700, so ARS asked for an increase of $500,000.

Mr. HORAN. That's all, Mr. Chairman.

TOBACCO RESEARCH

Mr. NATCHER. Mr. Chairman, yesterday I called the committee's attention to certain matters concerning tobacco research and since we still have Dr. Shaw with us, I wonder if you would yield to me at this time in order that I might direct certain questions to him, sir, concerning this project.

Mr. WHITTEN. Certainly, sir.

Mr. NATCHER. Dr. Shaw, you will recall in August of this past year I directed a letter to you and also to the Assistant Secretary, Mr. Peterson, concerning tobacco research. We have no research for tobacco which meets our present day needs.

Pursuant to my letters that I directed to you and to Mr. Peterson, I received from Mr. True D. Morse, Under Secretary, a letter dated September 9, 1959, which was in answer to my letters to Mr. Peterson and to you in which he stated that the Department recognized the importance of the problem generally. He further stated, Dr. Shaw, that tobacco production has one of the highest labor requirements of any important crop, approximately 400 man hours per acre. He stated further that although very limited mechanization has taken place during the past 40 years, increased yields have actually caused an increase in the per acre labor requirements.

He further stated, Dr. Shaw, that the Tobacco Research and Marketing Advisory Committee has assigned top priority under its recommendations for new and expanded work to research on mechanization of harvesting, farm handling, and curing of tobacco to develop new and improved methods and equipment which reduce the high labor costs of such operations.

He stated further that no Federal work is being conducted on tobacco harvesting, and it is estimated that State experiment stations devote 2 or 3 man-years of professional employees' time to this problem. Now, Dr. Shaw, can you tell me what, if anything, is being done in any of our experiment stations or at any of the laboratories or facilities throughout the United States concerning this important matter?

Dr. SHAW. As indicated in the letter from Mr. Morse, there is only a small amount of work being done anywhere by the State experiment stations. One of the efforts, I believe, is in Connecticut where they are trying to see if they can harvest and chop the leaf from the field and cure it quickly by adding an oxidizing agent. The field chopped leaf is then fabricated into sheets as cigar binder.

I would have to put in the record the other items that are going on, but there isn't much.

(The information follows:)

REDUCING LABOR COSTS FOR PLANTING TOBACCO IN KENTUCKY

Preliminary tests by the Kentucky station on planting burley tobacco seed directly in the field through a plastic mulch instead of planting in the customary tobacco beds indicates that labor could be reduced by machine planting in the field to approximately 2 hours per acre, a labor reduction of 97 percent. It is estimated that direct field planting would reduce production cost by approximately $15 per acre. This reduced cost would represent an increase in net

return of approximately $3 million annually to Kentucky burley producers alone.

NORTH CAROLINA FLUE-CURED TOBACCO—MACHINE HARVESTING

In a study of mechanical harvesters being used by North Carolina Flue-cured tobacco growers, it was found by the station that the amount of labor required could be reduced by about one-fourth and the labor costs could be reduced by one-fifth. When the costs of gasoline, oil, grease, repairs, and labor were included, the variable cost for machine harvesting amounted to 11 cents per stick compared to 13 cents per stick for hand harvesting. When fixed costs of depreciation, interest on investment, taxes, and insurance were included, it was found that the machine harvester lost its profitableness as far as small operators are concerned. If only 5 years of useful life for the machine can be expected, the grower would need to have 27 acres before mechanical harvesting would be as cheap or cheaper than hand harvesting. Obsolescence is a major factor of importance in determining the expected life of mechanical harvesters. With an expected life of 10 years the harvester is profitable if more than 15 acres are harvested annually. Other considerations may influence a farmer's decision to purchase a harvester. Availability of labor, ease of work, and machine performance under adverse conditions are frequently important.

LABOR REQUIREMENTS IN PRODUCING MARYLAND TOBACCO

The Maryland station has found that the amount of labor required to produce an acre of tobacco has declined little in recent years, but wide differences do exist between farms in amount of labor used. In a study of 100 farms by the Maryland station, the man-hours of labor required to produce an acre of tobacco ranged from 186 hours for the first decile to 390 hours for the tenth decile (farms sorted and arranged in order of man-hours required to produce an acre and grouped in lots of 10). Such factors as management, organization, size of farm, and use of two row planters accounted for much of the difference.

Stripping and grading accounted for 52 percent of total labor used. Harvesting and housing ranked second, accounting for 17.2 percent, and planting was third, accounting for 9.1 percent. Research on controlling humidity shows promise of enabling the farmer to distribute his labor load more evenly, thus reducing the amount of hired labor required.

Mr. NATCHER. Dr. Shaw, an adequate amount should be appropriated to start a tobacco research project. One that meets our present day requirements. What about this, Dr. Shaw, as to this type of research? Is it necessary at the present time? Would it be beneficial to tobacco generally and to the production of tobacco?

Dr. SHAW. Well, certainly, Mr. Natcher, one of the ways that we can reduce farmer's costs more than any other is to reduce the labor requirement for a given operation, and, as this letter from Mr. Morse states, tobacco is one of the highest farm labor categories that we have.

I, myself, think that there are some opportunities and some possibilities of mechanization to reduce those labor costs. I think that research in the area would be worth while. The only reason that we have not been able to give our attention to this is with the other work that is going on we have not shifted the money we have and we have not had increases in order to take on the additional work.

Mr. WHITTEN. Dr. Shaw—if you'll yield to me, Mr. Natcher.

Mr. NATCHER. Surely.

Mr. WHITTEN. You convinced us some years ago, and I think rightly so, that, as fine work as the State experiment stations do, many of these jobs could be better done where you have the same approximate need in a wider number of States in what we call a regional research project, as I recall. Have you explored any possible means whereby instead of having the State experiment stations in several

States giving a little attention to this, arrangements might be worked out for a regional project wherein you would center your efforts instead of spreading them out as apparently they are now? Has any thought been given to that, or could you get together?

Dr. SHAW. I don't know specifically that this has been discussed. Maybe Dr. Elting or Dr. Knoblauch would know the specific answer to your question, but certainly, taking the latter part of your question, we could initiate discussions. Under the payments to the State experiment stations, a portion of the funds are set aside for regional projects. A committee of nine, designated by the law, has the authority to recommend the initiation of the individual projects. This matter could be discussed with them and certainly from the States that are growing tobacco I would think there would be an interest.

Mr. WHITTEN. So many things are needed to be done and I know of Mr. Natcher's deep interest in this field, as we all do, and we are in thorough accord in supporting him in efforts in this way, but frequently to get real results you have to approach it on the one-two-three basis. I think you have already shown that this is a field in which attention should be given by your State. It requires more labor than most any other commodity for the volume that is involved.

I wonder how much time would it take to explore this thing and see what interest there might be or what effort might be made. Through Dr. Elting's approach, could you get anything together by the time this committee might conclude its hearings, say, by the 10th of March?

Dr. SHAW. We could only get indications. The committee of nine would have to meet and have a project presented to it by the Southern experiment stations.

Mr. WHITTEN. I am certain that we would be pushing you rather hard, but do you think you could get some indication as to the possibilities, let's put it that way, some indication as to whether this might work out.

Dr. SHAW. Let me ask Dr. Elting to comment more on that.

Dr. ELTING. I'm sure it would be possible to sound out groups of States to get the consensus of opinion on this point. I think perhaps the reason there has not been a regional project or regional projects developed is the difficulty of getting enough States that have a common interest. By that I mean the different types of tobacco grown in different areas each have a degree of specialization in the culture and practices that might raise some question as to whether this particular problem lends itself to a regional approach.

However, I am not sufficiently familiar with all of the problems to say that that would rule it out, and we would be very glad to explore this with the leading tobacco States to get a consensus of their opinion.

Mr. WHITTEN. We would appreciate if you would do that and tell us if you could. I think the 10th of the month will be when the Secretary will be down here and we want to mark this bill up and we won't make a report until maybe a week or so after that.

Mr. NATCHER. Mr. Chairman, I want to thank you for yielding to me. Dr. Elting and Dr. Shaw, I would like to call your attention further to the fact that this particular type of research would apply to

all flue-cured tobacco and air-cured tobacco, and I would appreciate it if this report were filed at the time indicated by the chairman.

Thank you, Mr. Chairman.

Mr. WHITTEN. Thank you. Are there any further questions?

Mr. ANDERSEN. Yes; please, Mr. Chairman.

SOIL AND WATER CONSERVATION RESEARCH LABORATORY NEEDS

Dr. Shaw, I would like for you to place in the record at this point your answer to the following questions:

How much money do you have allocated for the fiscal year 1960 for each of the soil and water conservation laboratories approved by Congress? I'm referring in this case to the 1960 allocation, what will you use this year?

Dr. SHAW. You want the 1960 allocation so far as these locations for which increases were provided in the 1960 appropriation?

Dr. ANDERSEN. That is correct. I'm referring to the amount for laboratories.

Secondly, Dr. Shaw, I would like to know how many people are provided for in the 1960 allocation and what grades and what positions?

Third, I would like to ask the same question relative to the allocation in the budget for the laboratories but in relation to the 1961 request.

The fourth question is: Personnel in relation to the 1961 request.

My final question is: I want to know if you feel that with the money you have requested in the budget, or I might say with the money which has been requested for 1961 by the budget, if you feel that the kind of a job can be done in these laboratories that it is the intent of this subcommittee to be done?

I wish you would place at your convenience in the record the answer to these questions.

Dr. SHAW. In relation to the last question, would it be in appropriate for me to include the amount of money that was recommended by the committee that made the study of all the needs.

Mr. ANDERSEN. Doctor, I want you to use your own judgment. I only want to try to get a specific answer to refer to before we mark up the bill.

Thank you.

Dr. SHAW. We will put it in the record.

Mr. ANDERSON. Thank you, sir; the more detailed the better.

(The information requested follows:)

*Soil and water conservation research at locations for which additional funds were provided in fiscal year 1960*

| Location | Fiscal year 1960 [1] | | Fiscal year 1961 [2] | | Additional amounts required to provide operating funds at level shown in Senate Document 59 | |
|---|---|---|---|---|---|---|
| | Man-year | Amount | Man-year | Amount | Man-year | Amount |
| Arizona, Tempe: | | | | | | |
| Personal services [3] | 16.4 | $95,750 | 32.0 | $201,770 | 7.0 | $40,955 |
| Other expenses | | 176,800 | | 127,730 | | 32,045 |
| Total | 16.4 | 272,550 | 32.0 | 329,500 | 7.0 | 73,000 |
| California, Brawley: | | | | | | |
| Personal services [3] | 12.4 | 72,000 | 15.3 | 91,050 | 2.0 | 11,740 |
| Other expenses | | 48,000 | | 40,350 | | 2,560 |
| Total | 12.4 | 120,000 | 15.3 | 131,400 | 2.0 | 14,300 |
| Georgia, Watkinsville: | | | | | | |
| Personal services [3] | 27.5 | 146,250 | 34.0 | 183,845 | 5.0 | 29,365 |
| Other expenses | | 99,686 | | 114,755 | | 38,835 |
| Total | 27.5 | 245,936 | 34.0 | 298,600 | 5.0 | 68,200 |
| Idaho, Boise: | | | | | | |
| Personal services | 5.5 | 40,170 | 15.0 | 98,790 | 4.0 | 22,650 |
| Other expenses | | 109,830 | | 116,110 | | 63,250 |
| Total | 5.5 | 150,000 | 15.0 | 214,900 | 4.0 | 85,900 |
| Minnesota, Morris: | | | | | | |
| Personal services [3] | 16.2 | 104,695 | 33.0 | 187,830 | 8.0 | 40,850 |
| Other expenses | | 161,464 | | 132,670 | | 30,050 |
| Total | 16.2 | 266,159 | 33.0 | 320,500 | 8.0 | 70,900 |
| South Dakota, eastern (Brookings): | | | | | | |
| Personal services [3] | 1.8 | 9,855 | 4.0 | 22,150 | | |
| Other expenses | | 40,145 | | 28,150 | | |
| Total | 1.8 | 50,000 | 4.0 | 50,300 | | |
| Mississippi, Oxford: | | | | | | |
| Personal services [3] | 32.0 | 187,490 | 45.0 | 278,610 | 6.0 | 31,415 |
| Other expenses | | 199,894 | | 149,090 | | 18,785 |
| Total | 32.0 | 387,384 | 45.0 | 427,700 | 6.0 | 50,200 |
| Nevada, Reno (Humboldt River watershed): | | | | | | |
| Personal services [3] | 0.5 | 1,860 | 1.0 | 3,810 | 0.5 | 4,740 |
| Other expenses | | 8,140 | | 10,590 | | 960 |
| Total | 0.5 | 10,000 | 1.0 | 14,400 | 0.5 | 5,700 |
| Ohio, Coshocton: | | | | | | |
| Personal services [3] | 17.6 | 101,060 | 20.0 | 113,880 | | |
| Other expenses | | 39,112 | | 38,120 | | 14,200 |
| Total | 17.6 | 140,172 | 20.0 | 152,000 | | 14,200 |
| Texas, Riesel: | | | | | | |
| Personal services [3] | 13.3 | 79,805 | 19.0 | 108,810 | 2.0 | 12,435 |
| Other expenses | | 41,765 | | 36,690 | | 18,165 |
| Total | 13.3 | 121,570 | 19.0 | 145,500 | 2.0 | 30,600 |
| Texas, Weslaco: | | | | | | |
| Personal services [3] | 22.1 | 121,995 | 36.0 | 195,420 | 5.0 | 28,000 |
| Other expenses | | 96,405 | | 55,480 | | 13,000 |
| Total | 22.1 | 218,400 | 36.0 | 250,900 | 5.0 | 41,000 |

**See footnotes at end of table.**

*Soil and water conservation research at locations for which additional funds were provided in fiscal year 1960*—Continued

| Location | Fiscal year 1960 [1] | | Fiscal year 1961 [2] | | Additional amounts required to provide operating funds at level shown in Senate Document 59 | |
|---|---|---|---|---|---|---|
| | Man-year | Amount | Man-year | Amount | Man-year | Amount |
| Vermont, Danville: | | | | | | |
| Personal services [3] | 4.4 | 24,655 | 9.0 | 49,635 | 3.0 | 17,550 |
| Other expenses | | 33,887 | | 25,265 | | 4,350 |
| Total | 4.4 | 58,542 | 9.0 | 74,900 | 3.0 | 21,900 |
| Grand total | [4] 169.7 | 2,040,713 | [4] 263.3 | 2,410,600 | [4] 42.5 | 475,900 |

[1] Includes appropriation increase of $880,900, and excludes $355,000 which was provided for equipment and improvements as follows:

| | |
|---|---|
| Watkinsville, Ga | $145,000 |
| Weslaco, Tex | 100,000 |
| Riesel, Tex | 75,000 |
| Coshocton, Ohio | 35,000 |

[2] Increases by location reflect (*a*) distribution of $355,000 provided in fiscal year 1960 for equipment and improvement costs, and (*b*) an increase of $14,887 for health benefit costs.

[3] Includes base salaries and Federal contribution to the retirement fund, life insurance, and for fiscal year 1961, health benefit costs. The personal services in fiscal year 1960 reflect lapses due to personnel under appropriation increases being available for only a part of the fiscal year. Lapse funds are used for equipment and other initial nonrecurring costs.

[4] The total man-years shown in the above tabulation are distributed by grade as follows:

| | Fiscal year 1960 (positions) | Fiscal year 1961 (positions) | Estimated additional employment under increase which would provide operating funds at level shown in Senate Document 59 (positions) |
|---|---|---|---|
| GS-14: | | | |
| Agricultural engineer | 1 | 1 | |
| Soil scientist | 2 | 2 | |
| Total | 3 | 3 | |
| GS-13: | | | |
| Agronomist | 1 | 1 | |
| Geologist | 1 | 1 | |
| Hydraulic engineer | 5 | 5 | |
| Physicist | 1 | 1 | |
| Soil scientist | 5 | 5 | |
| Total | 13 | 13 | |
| GS-12: | | | |
| Agricultural engineer | 6 | 6 | 2 |
| Chemist | 1 | 2 | |
| Geologist | 1 | 1 | |
| Hydraulic engineer | 6 | 6 | 2 |
| Plant physiologist | 1 | 1 | |
| Physicist | | 1 | |
| Soil scientist | 4 | 5 | 1 |
| Total | 19 | 22 | 5 |
| GS-11: | | | |
| Agricultural engineer | 7 | 7 | 1 |
| Chemist | 2 | 2 | |
| Hydraulic engineer | 4 | 4 | |
| Physicist | 2 | 2 | |
| Plant physiologist | | | 1 |
| Soil scientist | 7 | 8 | 1 |
| Total | 22 | 23 | 3 |

| | Fiscal year 1960 (positions) | Fiscal year 1961 (positions) | Estimated additional employment under increase which would provide operating funds at level shown in Senate Document 59 (positions) |
|---|---|---|---|
| GS-9: | | | |
| Administrative assistant | 3 | 3 | |
| Agricultural engineer | 1 | 3 | |
| Analytical statistician | 1 | 1 | |
| Geologist | 1 | 1 | |
| Hydraulic engineer | 2 | 2 | 1 |
| Soil scientist | 10 | 10 | 2 |
| Total | 18 | 20 | 3 |
| GS-7: | | | |
| Administrative assistant | 2 | 2 | |
| Agricultural aid | 1 | 1 | |
| Agricultural engineer | 7 | 8 | 2 |
| Agronomist | 1 | 1 | |
| Chemist | 1 | 1 | |
| Engineering aid | 1 | 1 | |
| Geologist | 1 | 1 | |
| Hydraulic engineer | 4 | 4 | 1 |
| Research technologist | 4 | 4 | |
| Soil scientist | 6 | 8 | 2 |
| Total | 28 | 31 | 5 |
| GS-6: Subprofessional aids | 3 | 3 | |
| GS-5: | | | |
| Clerical | 5 | 5 | |
| Subprofessional aids | 28 | 34 | 13 |
| Total | 33 | 39 | 13 |
| GS-4: | | | |
| Clerical | 16 | 17 | |
| Subprofessional aids | 27 | 27 | 8 |
| Total | 43 | 44 | 8 |
| GS-3: | | | |
| Clerical | 12 | 12 | 2 |
| Subprofessional aids | 8 | 14 | 2 |
| Total | 20 | 26 | 4 |
| GS-2: | | | |
| Clerical | 1 | 1 | |
| Subprofessional aids | 4 | 4 | |
| Total | 5 | 5 | |
| Wage board | 43 | 47 | 4 |
| Total positions | 250.0 | 276.0 | 45.0 |
| Total man-years | 169.7 | 263.3 | 42.5 |

## CLASSIFICATION OF COTTON

Mr. WHITTEN. Dr. Shaw, we are familiar with the plans to find the answer with regard to cotton as to its tensile strength and the way to measure and class cotton perhaps differently from what we are now doing, and I would like for you to point out in the record where this was discussed, the various steps involved; how far and in what fields you are meeting this and where the gaps now exist and the rate at which you hope to gradually trace it all the way through, according to your desires.

Dr. SHAW. All right.
(The information requested follows:)

COTTON QUALITY RESEARCH

AGRICULTURAL RESEARCH SERVICE

*Cotton breeding research*

For a number of years, the Department has cooperated with the Tennessee Agricultural Experiment Station at Knoxville in evaluation of spinning quality related to cotton genetic and breeding research. A fiber testing and small scale spinning laboratory there is engaged in basic research standardizing fiber quality measurements and spinning tests on one-half pound samples of fiber and relating the fiber data to spinning test results to determine the significance of each fiber property measurement to spinning performance. This research has involved determining fiber properties that primarily are controlled by heredity, how they are inherited, and how the data can be used in guiding our genetics and breeding program to develop improved varieties, combining high fiber quality and high yields. It also has involved determining the influence of soil moisture, temperature, and other environmental factors on modifying the inherent desirable fiber quality characteristics. A comparison of the quality of the leading cotton varieties grown today with those grown 20 years ago furnishes ample proof of the influence this research program has had in improving the heritable qualities of American cotton varieties.

*Need for acceleration of evaluation of new strains of cotton*

Remarkable progress has been made in basic research and analysis of fiber properties and the application of this knowledge in guiding the breeding programs of institutional and private cotton breeders. However, the problem is so complex in all of the biological ramifications that much remains to be done. Breeding is time consuming and is in need at the earliest possible moment of better basic information than now available to provide the spinner a diversity of high quality cottons to fit modern textile requirements and end-use needs. Several theoretically important fiber quality characteristics are as yet not being measured on the breeders' samples. Improvements in both accuracy and speed are needed on the properties now being measured if the breeding and agronomic research programs are to be served adequately. Consequently, there is a pressing need to accelerate the basic fiber research and analysis of fiber properties. Some encouraging progress now is being made in the cooperative program with the Tennessee Station on improving the Fibrograph for rapidity and reproducibility of fiber length measurements and the distribution of varying fiber lengths as affected by variety, growing conditions, preharvest weather exposure, and subsequent treatments.

This basic research could be strengthened by the addition of capable professional and supporting personnel to aid in instrument development, to evaluate instrumentation and perfect testing techniques, and to aid in processing data for interpretation to guide the breeding of better fibers. Work in this area will be closely coordinated with that of the cotton quality research at Clemson, S.C.

*Cotton Mechanization and Ginning*

Research on mechanical harvesting of cotton is carried on at Stoneville, Miss.; Auburn, Ala.; Shafter, Calif.; and Lubbock, Tex. Research on cotton ginning and related processes is carried on at Stoneville, Miss.; Clemson, S.C.; Mesilla Park, N. Mex.; and Chickasha, Okla.

In fiscal year 1960, an increase of $200,000 was provided for strengthening cotton mechanization and ginning research at Stoneville, Miss. This increase provided for studies on development of principles, methods, and equipment relating to defoliation and harvesting of machine picked cotton; and instrumentation and requirements for cleaning, ginning, and handling machine harvested cotton at gins. This includes relationship of atmospheric relative humidity to seed cotton quality prior to and during machine harvest, safe storage periods at different levels of relative humidity for seed cotton in trailers prior to ginning, source of possible oil contamination in machine picked cotton, instantaneous moisture measurement of seed cotton and lint during the ginning process, and development of a system of controls to allow ginning at optimum seed cotton moistures.

*Need for acceleration of research related to cotton harvesting, handling, and ginning*

*Basic research.*—Fundamental studies are essential to determine the changes in fibers that take place during harvesting, handling, and ginning of seed cotton. All of these studies are conducted in close cooperation with the Clemson Laboratory of Agricultural Marketing Service, and need to be an integral part of the research of the Agricultural Engineering Division aimed at development of improved mechanical equipment for the harvesting and ginning of cotton.

Such research would provide the basis for the most effective modification and use of presently available harvesting and ginning equipment and for the development of new and more effective harvesting, handling, drying, cleaning, and ginning equipment and methods.

Specifically, there is urgent need for a rapid and effective means of determining the percentage of short fibers before and after ginning and at selected points in the ginning operations.

There is also need for instruments and techniques for quickly determining the quantity and character of trash in seed cotton for the purpose of enabling ginners to forecast and meet the drying and cleaning needs of seed cotton.

The present level of research on these problems of basic fiber characteristics and related instrumentation in connection with harvesting and ginning research is about the level of one professional worker. Additional workers would be required for significant research in this field.

*Mechanical stripper research.*—Currently, around 1½ million bales of cotton are being harvested by strippers. Potentially, the stripper has the promise of being more widely used as a most economical harvesting method for a much higher percentage of the crop if refinements can be made. Preliminary studies indicate that a stepped-up research effort on modification, adjustment, and operation is warranted to determine when it is advisable for a producer to use a stripper from a quality and cost standpoint.

Research on this problem should not be limited to refinements of conventional strippers but should include the development and investigation of any harvesting principles and equipment which have any possibility of resulting in a better quality-cost combination.

The present level of research on this problem is less than one professional man-year. At least two additional professional workers are needed, with some subprofessional assistance.

*Gin-stand research.*—Rapid methods of harvesting are placing increasingly heavy loads on gins. Mechanical pickers and strippers are materially shortening the harvesting season. Research has tried to cope with this rapid movement of cotton to the gins by developing gin stands of greater capacity. This has offered some temporary relief, but it is possible that the high-speed gins may adversely affect the spinning quality of cotton. Even at best, the action of the gin stand is harsh and may contribute to the percentage of short fibers. Therefore, some of the spinning difficulties which are now attributed to drying and cleaning may be due to the action of the gin stand. Some gin-stand research is going on at present, but this work needs to be expanded to explore the whole area of rapidly removing the lint from the seed of long staple and upland varieties while preserving the spinning quality of the cotton.

Present research on this problem includes about one professional worker each on roller ginning and saw ginning methods. At least two additional professional workers are needed with appropriate supporting subprofessional workers.

*Cotton utilization research*

The Department's principal cotton textile research as related to new and extended uses for cotton is conducted by the Southern Utilization Research and Development Division at New Orleans, La. In fiscal year 1960, $2,468,600 is budgeted for this work. This program includes research to achieve improved processes, processing equipment, and quality of product: On the chemical treatment of cotton to impart special properties; the development of new and improved cotton processing machinery and cotton processing methods; the design of cotton products for special end uses. In addition, it includes basic research on the physical and chemical structure and properties of cotton; analysis of fiber properties; and instrument development as an aid to developing new and

improved cotton products and processing machinery. More information on certain of these areas is given below:

*Basic fiber research and analysis of fiber properties*

*Achievements.*—Substantial and continuing progress of research in this area has resulted in the development of a more adequate understanding of (1) the architecture of the cotton fiber and its relationship to mechanical and chemical processes; and (2) the effect of fiber properties such as fineness, maturity, strength, etc., on the properties and quality of the yarns and the resulting wide range of end-use fabrics produced.

*Current program.*—Investigations include (1) cotton fiber structure and its relation to the behavior of cotton in mechanical and chemical treatment; (2) cotton fiber structure and its relation to all types of degradative mechanisms; (3) the effects of high energy radiation on the properties and reactivity of cotton; (4) the blending of cottons of different fiber characteristics to obtain optimum fiber processing and quality and efficiency; (5) the establishment of interrelation between fiber, yarn, and fabric properties and measurement of these properties.

*Fiscal year 1961 increase.*—Projects in this area recommended for increase in fiscal year 1961 include:

(1) Development of optimal construction for fabrics for wash-wear products of improved quality, $85,000; development of equipment for blending short fibers from cotton, $45,000; (3) investigations of changes of molecular structure of native, degraded, chemically modified and treated cotton by infrared spectroscopy, $60,000; and (5) determination of the effect of cotton fiber properties on spinning efficiency, $40,000.

*Instrument development*

*Achievements.*—In connection with the new uses research of the Southern Utilization Research and Development Division, numerous evaluation methods and instruments have been developed to study and measure the physical and chemical properties of cotton. These include (1) specialized instruments, such as the nepotometer, stelometer, automated fibrograph, automatic crease recovery tester; (2) new spectrochemical and microscopic techniques; and (3) standardized analytical procedures.

*Current program.*—Research is being conducted on the development of (1) an instrument for quickly and accurately measuring the trash content of cotton at various stages of mill processing; (2) an accelerated ends-down test; (3) a device for automatically preparing fiber specimens for rapid determination of distribution of fiber length; and (4) infrared spectroscopic procedures for evaluating the chemical modification of cotton.

*Fiscal year 1961.*—No projects have been recommended for increase in this area in fiscal year 1961.

*Need for utilization research*

The specific research approaches mentioned above are highly important in supplying textile mills with cotton fiber of the highest quality. However, the program is incomplete in that the mill is not the ultimate consumer and an expanded utilization research program is needed to provide the consumer with new and improved cotton end-use products to limit inroads of synthetics into cotton's traditional markets and to provide new products for expanded markets. Increased research effort is needed on cotton lint and its products; on the basic structure, properties, and chemical and physical mechanisms as they relate to new and extended uses; the improvement of important properties of cotton such as tear, soil, water resistance, etc.; interrelation among the measurements of fiber, yarn, and fabric properties; improvement of wash-wear properties of cotton; exploratory chemical and physical investigations; development of improved methods of mechanical processing; chemical property development, such as flame, heat, rot, weather resistance, etc.; development of new and improved cotton products; and development of new and improved mechanical processing machinery.

AGRICULTURAL MARKETING SERVICE

*The cotton quality research problem*

Current AMS research and development work on the evaluation of market quality in raw cotton is being concentrated on providing objective means for measuring specific factors of quality. An integral part of this work is the

development of information with respect to the significance of each factor of quality in terms of cost of manufacturing and value of manufactured products.

Our present system of evaluating quality is a subjective one depending upon a sensory determination of grade and length of staple. It has been recognized for some time that classing, while practicable, is an incomplete evaluation of cotton quality. Masses of data accumulated over the years on fiber and small-scale tests, as well as classing, indicate the relative efficiency of present procedures for measuring quality. Analysis of these data has been accelerated by high-speed electronic computers that have recently become available. Results are being obtained which describe quantitatively the degree to which each measurable quality factor of cotton is related to manufacturing waste and to yarn strength, appearance and finishing properties. For some factors, the prediction is gratifyingly good; for others, it is highly unsatisfactory, indicating that there are important factors in product quality that are as yet unrecognized.

The situation is even worse with respect to manufacturing performance of cotton. The real factors of quality in the raw stock that provide optimum manufacturing performance of cotton are not well understood. Yet reflectance of this information in the marketplace, like the guidance system of a missile, is essential for guidance and control of the whole cotton technology and research from the field through ginning to the spinning plant. Without it, final answers to whether a new cultural practice, a new ginning or cleaning treatment, or any new innovation in the marketing system, improves or impairs cotton quality cannot be given.

*Solution of the problem—present and future*

The recent establishment of the AMS pilot spinning laboratory at Clemson, S.C., is the first step in closing the most serious gap in the cotton quality program of the Department. It provides the means, for the first time, of obtaining a measure of spinning performance. Small-scale spinning tests and present fiber tests do not give the full story.

The first specific task undertaken at the facility is to resolve the question of whether new ginning and cleaning practices have impaired cotton quality with respect to its manufacturing performance. The laboratory is operating on a two-shift basis in spinning experimental cottons that have been subjected to controlled ginning, drying, and cleaning treatments.

*Need for increased capacity*

A deficiency in operating funds makes the continued operation of the Clemson Laboratory on a two-shift basis problematical. Even though we received substantial financial support from the National Cotton Council, additional funds are needed to complete the staffing of the laboratory and to round out the assembly of standard fiber- and yarn-testing equipment. The laboratory will then be in a position to undertake the important function of basic fiber research and instrument evaluation. It is uniquely qualified for this task because it will handle cottons of known treatment history whose performance and other characteristics will be measured by the best devices now available.

Even by operating on a two-shift basis, the laboratory has already over a 12-month backlog of work in evaluating cottons from ginning-cleaning studies. This means that it is necessary to defer such important studies as the effect of cultural and harvesting practices, environment, and new breeding stocks on spinning performance.

By expansion of the Clemson facility to a three-shift operation, the backlog of work could be removed and a number of additional studies could be undertaken. The acquisition of additional capacity and facilities on a contract basis will also help but not remove the necessity for a three-shift operation.

Attention is called to the fact that operating the spinning facility on a three-shift basis will materially increase the annual maintenance cost.

*Develop weaving and finishing facilities*

For a full physical and economic appraisal of cotton quality, the processing of the lint should be carried to the finished fabrics. Arguments for stopping the evaluation at the spinning stage are similar to those that for so many years have prevented full-scale spinning evaluation. The facts are that variations in quality are not always evident until a fabric is woven and finished. In some respects we know even less of the quality requirements of cotton for these manufacturing steps than we do for spinning.

The specific requirements are the development of additional air-conditioning, location of space, procurement of loom facilities, and the acquisition of standard instrumentation for measuring strength, abrasion resistance, wrinkle recovery, and drape or finished fabrics. Even though some of the costly items; namely, slashing, warping, and finishing equipment, are partially available at the Clemson Textile School, the initial investment for this added evaluation would be high but would be largely nonrecurring. The main recurring expense would be some expansion of the Clemson Laboratory labor force to operate the weaving and finishing facility. The labor cost is estimated at less than one-fourth the initial investment.

*Prompt data analysis necessary*

The mass of data from the test conducted at the AMS cotton quality research laboratory will yield information which can be used immediately by the cotton industry in selecting varieties to be produced and production and harvesting methods to be followed in order to provide mills with the qualities of cotton which they can use most efficiently. The limited information already available indicates that changes in harvesting and ginning practices are possible even within the existing marketing framework which would increase returns to growers and better maintain the inherent qualities of cotton. The data from the tests also will provide a basis for revision and improvement of quality standards necessary before true use value of cotton can be incorporated into commercial trade practices and reflected in market prices. It is essential, therefore, that results of these studies be made available to the public as quickly as possible. Prompt, adequate analysis of the data will require the addition of several statistical and clerical employees.

*Initiate basic research and instrument development*

One of the ultimate goals of the AMS cotton quality research program is the development of instruments that will provide rapid and accurate measures of the manufacturing performance of cotton. In this way, objective appraisal of cotton quality in the marketplace will become feasible either as an adjunct to the present classing system or as an integral part of some new quality grading system. Progress in this direction means that we must learn what makes cotton spin and what combination of properties make it spin well, and conversely, what factors in the field and in the gin impair these qualities. These are basic questions, and basic research is needed to find the answers. Basic research for a marketing problem is rather a novel concept to many, but it is just as applicable here as for any other agricultural problem.

The answers we seek are locked in the ultrastructure and surface properties of the cotton fiber. We need to initiate intensive investigations in order to establish new measuring principles that will relate to the real quality factors of cotton. Many modern scientific procedures such as microwave, nuclear magnetic resonance, beta and gamma ray absorption techniques should be applied to the problem.

The solution here is to establish an advanced research and instrumentation laboratory staffed with a small but highly trained and competent group of scientists and engineers. It would be the mission of the scientists to invetsigate on a molecular basis, if necessary, the variations in quality uncovered by the spinning laboratory. Once the measuring principle was established, the engineers would translate it into practical instrumentation which would be evaluated by the spinning laboratory. The final appraisal of the instrument comes back to the spinning laboratory, where the problem was first clearly defined.

An advanced research and instrumentation laboratory solely for the purpose of uncovering significant quality characteristics of cotton is not now in existence. This is something that could not be built up piecemeal with gradual expenditures of small sums. Adequate funding would be required to acquire the complex research instrumentation needed and to recruit a competent staff.

This program developed for marketing needs would be useful to the breeder and to all other segments of the cotton industry, but would not supplant the basic research needs and the special instrumentation requirement for other research programs on cotton.

*Standards and classing research needs*

The research program needs in connection with the official standards and their application in the classification of cotton may be divided into two general categories as follows:

1. Pilot plant studies to evaluate the spinning and finishing performance of cotton as related to the following items which are closely associated with the official standards and their application in the classification of cotton.

(*a*) *Color.*—There are a number of color groups in the official standards for grade such as white, spotted, tinged, stained, and gray, in addition to the color differences between grades in each color group. This item is a very important one under the present classification and marketing system in determining the value of a bale of cotton. It needs to be further evaluated in terms of processing and finishing performance.

In addition, carefully conducted research under controlled conditions is needed to determine the color and other changes that occur to cotton in storage under a range of conditions of temperature and humidity.

(*b*) *Leaf and other trash.*—This item has changed in recent years both in amount and the type of leaf and other trash as a result of changing cultural, marketing, and ginning practices. It is one of the factors of grade in the official standards which is very important under the present classification and marketing system in determining the value of a bale of cotton. It needs to be further evaluated from the standpoint of processing and finishing performance.

(*c*) *Preparation.*—This item is one of the factors of grade in the official standards which is used under the present classification and marketing system in determining the value of a bale of cotton. It needs to be further evaluated in relation to processing and finishing performance.

(*d*) *Staple length.*—This is the other item in addition to grade which is included in the official standards and is very important under the present classification in determining the value of a bale of cotton. It is more important in cotton quality evaluation because a number of other properties such as strength and fineness are normally associated with length. Intensified programs by both private and Government cotton breeders in recent years have changed some of the normal relationships between length and other properties. Staple length needs to be further evaluated in terms of processing and finishing performance.

(*e*) *Factors of character.*—Character may be defined as those elements of cotton quality which are not included in grade or staple length. There are no character standards but there are a number of fiber properties which are recognized as a part of character such as length uniformity, length distribution (or short fiber content), strength, fineness, maturity, spirality, pliability, cohesiveness, and compressibility. Some of these properties are measurable under present conditions, but others are not. Those for which measurements are rapid enough to be an aid in the classification of cotton should be further evaluated with respect to processing and finishing performance.

2. Instrumentation work to dvelop rapid methods of obtaining measurements of various known properties of cotton. Such measurements are needed both in the preparation of official cotton standards and to the application of these standards in the marketing channels to represent the quality of cotton for both processing performance and product quality. Some of the present test methods that need to be speeded up in order to be practical in the marketing channels are:

(*a*) Leaf and other trash—

(1) Trash meter to determine the amount of surface leaf and to classify it as to area and particle size.

(2) Waste analyzer to determine the percentage of leaf and other trash and to fractionate it according to size.

(*b*) Moisture meter that is reliable in determining the moisture content of cotton fiber.

(*c*) Length and length distribution measurement of cotton samples.

(*d*) Strength measurement device that is fast and indicative of fiber strength of cotton sample.

(*e*) Fineness and maturity—The Micronaire instrument is fast and applicable in commercial practices. It measures fineness and maturity of cotton fibers in combination. When the variety of cotton is known it can be said to be measuring maturity.

In view of the inadequacy of established methods for evaluating lint cotton quality with respect to its manufacturing performance, instrumentation work is needed to develop methodology and instrumental techniques designed to provide measures of quality factors which are a part of character. There is a need to develop methodology to determine some of the properties not now being measured as shown under item (e) of pilot plant studies. Some of the properties that need to be measured are spirality, cohesiveness, compressibility, crimps, etc.

Dr. SHAW. Mr. Chairman, before you take up the next subject, could I make a request that in connection with my general statement where I referred to four attachments, to include two of those attachments in the record: a short one on the new varieties of plants released during the year, and the other on the honors and awards to scientists.

Mr. WHITTEN. We would like to have those at the appropriate place in the record.

BRUCELLOSIS ERADICATION

Mr. ANDERSEN. Dr. Clarkson, we have discussed the brucellosis eradication campaign and I was very much interested in hearing the question propounded by the gentleman from Kentucky, Mr. Natcher, as to just how much money could profitably be used in doing the kind of a job we want done without waste of money and yet taking the time element into consideration in trying to suppress this disease as far as possible in the shortest length of time. I wish you would place in the record at this point, after due consideration, the amount of money you think you could use, based upon present conditions and without waste, and attach a little statement to it as to what you consider that particular level of appropriation would accomplish.

Dr. CLARKSON. All right, sir.

Mr. ANDERSEN. I would like that for the information of the committee.

Dr. CLARKSON. I'll be glad to do that, sir.

(The information requested follows:)

**Approximately $37.5 million in combined State and Federal appropriations each year can be used effectively and efficiently in the brucellosis eradication program. Assuming that State contributions would return to the 1959 level and that approximately $37.5 million combined State and Federal funds would be available annually, it would take approximately 6 years to achieve modified certified status with adequate manpower, a continued high level of support from the livestock industry, and no appreciable increase in program costs.**

**Following nationwide certification, another 5 to 10 years would be required to accomplish complete eradication.**

## SPECIAL FOREIGN CURRENCY PROGRAM

*Program and Financing*

| | 1959 actual | 1960 estimate | 1961 estimate |
|---|---|---|---|
| Program by activities: | | | |
| 1. Market development research (sec. 104(a)) | $218,195 | $2,800,000 | $4,600,000 |
| 2. Agricultural and forest research (sec. 104(k)) | 1,700 | 780,000 | 3,800,000 |
| Total program costs | 219,895 | 3,580,000 | 8,400,000 |
| 3. Relation of costs to obligations: Obligations incurred for costs of other years (unpaid undelivered orders), net | 1,433,633 | 18,337,831 | 6,731,500 |
| Total program (obligations) | 1,653,528 | 21,917,831 | 15,131,500 |
| Financing: | | | |
| Unobligated balance brought forward | −28,516 | −5,973,031 | |
| Comparative transfer from (−) other accounts | −1,700 | −3,888,300 | |
| Adjustment due to chages in exchange rates to permit conversion to dollar equivalent | 141 | | |
| Unobligated balance carried forward | 5,973,031 | | |
| Authorization to expend foreign currency receipts (net of proposed appropriation to cover balances as of June 30, 1960) | −7,596,484 | 5,581,243 | |
| New obligational authority | | 17,637,743 | 15,131,500 |
| New obligational authority: | | | |
| Indefinite (proposed in appropriation language above) | | $17,637,743 | |
| Definite | | | $15,131,500 |
| Appropriation | | 17,637,743 | 15,131,500 |

NOTE.—The gross foreign currency authorization in 1960 is $12,056,500. The schedule above covers foreign currency authorizations for 1959 and 1960. The appropriation recommended for 1960 is equal to the unexpended balance of previous foreign currency authorizations as of June 30, 1960. All transactions in 1961 relate to appropriations.

*Object classification*

| | 1959 actual | 1960 estimate | 1961 estimate |
|---|---|---|---|
| Full-time equivalent of all other positions | 1 | 2 | 7 |
| Average number of all employees | 1 | 2 | 7 |
| Number of employees at end of year | 1 | 2 | 7 |
| Average GS grade and salary | 7.5 $6,004 | 7.6 $6,045 | 7.6 $6,083 |
| 01 Personal services: | | | |
| Positions other than permanent | $1,175 | $4,200 | $14,000 |
| Other personal services | 6,359 | 10,700 | 15,000 |
| Total personal services | 7,534 | 14,900 | 29,000 |
| 02 Travel | 40,195 | 80,000 | 80,000 |
| 03 Transportation of things | 8,149 | 12,000 | 4,000 |
| 04 Communication services | 650 | 1,000 | 2,000 |
| 06 Printing and reproduction | | 1,000 | 1,000 |
| 07 Other contractual services | 1,588,526 | 21,733,431 | 14,940,000 |
| Services performed by other agencies | 8,434 | 75,000 | 75,000 |
| 08 Supplies and materials | 40 | 500 | 500 |
| Total obligations | 1,653,528 | 21,917,831 | 15,131,500 |

*Analysis of expenditures*

| | 1959 actual | 1960 estimate | 1961 estimate |
|---|---|---|---|
| Obligated balance, start of year | $371,484 | $1,828,212 | |
| Obligations incurred during the year, net | 1,651,828 | 18,029,531 | |
| Obligated balance, end of year | −1,828,212 | | |
| Obligated balance, end of year, transferred to appropriation | | −17,637,743 | |
| Expenditures | 195,100 | 2,220,000 | |

*Status of unfunded allocations*

| | 1959 actual | 1960 estimate | 1961 estimate |
|---|---|---|---|
| Unfunded balance, start of year | $400,000 | $2,109,372 | |
| Allocations | 7,596,484 | 12,056,500 | |
| Adjustment due to changes in exchange rates to permit conversion to dollar equivalent | −141 | | |
| Unfunded balance, end of year | −2,109,372 | | |
| Transfers into agency account | 5,886,971 | 14,165,872 | |

Mr. WHITTEN. We will turn now to the special foreign currency program. We would like pages 113 through 115 on the special foreign currency program included in the record at this point.

(The material requested is as follows:)

*(b) Salaries and expenses (special foreign currency program)*

| | |
|---|---|
| Allocations of foreign currencies, 1960 and base for 1961 | $12,056,500 |
| Budget estimate, 1961 | 15,131,500 |
| Increase | +3,075,000 |

NOTE.—The 1961 budget estimates include for the first time a proposal for the appropriation, "Salaries and expenses (special foreign currency program), Agricultural Research Service," which would provide funds for the purchase of foreign currencies derived from sales under title I of the Agricultural Trade Development and Assistance Act of 1954, as amended (Public Law 480) for the purposes of market development research (sec. 104(a)) and agricultural and forest research (sec. 104(k)).

Previously, the funds for these purposes have been derived as follows:

(*a*) Requests for allocations to use foreign currencies for the purposes of market development research under section 104(a) have been reviewed and approved by the Bureau of the Budget.

(*b*) Allotments of funds for the purposes of agricultural and forest research under section 104(k) have been made from the $5.1 million appropriation provided in the Supplemental Appropriation Act, 1959 (Public Law 85–766), approved August 27, 1958, to the account "Funds appropriated to the President" for use in purchasing foreign currencies to conduct scientific activities abroad and to provide translation services as authorized by section 104(k).

The project statement which follows has been prepared on the basis of available funds, and reflects obligations incurred in 1959 and estimated in 1960 and 1961.

*Summary of increases and decreases, 1961 (on basis of available funds)*

| | |
|---|---|
| Decrease for market development research under sec. 104(a) of Public Law 480 | −$14,939,531 |
| Increase for agricultural and forest research under sec. 104(k) of Public Law 480 | +8,153,200 |

*Project statement (on basis of available funds)*

| Project | 1959 | 1960 (estimated) | Increase or decrease | 1961 (estimated) |
|---|---|---|---|---|
| 1. Market development research (sec. 104(a)) | $1,651,828 | $18,029,531 | −$14,939,531 | $3,090,000 |
| 2. Agricultural and forest research (sec. 104(k)) | 1,700 | 3,888,300 | +8,153,200 | 12,041,500 |
| Total obligations or estimate [1] | 1,653,528 | 21,917,831 | −6,786,331 | 15,131,500 |
| Comparative transfer from other accounts | −1,700 | −3,888,300 | | |
| Unobligated balance brought forward | −28,516 | −5,973,031 | | |
| Unobligated balance carried forward | 5,973,031 | | | |
| Authorization to expend foreign currency receipts | −7,596,484 | −12,056,500 | | |
| Adjustment due to changes in exchange rates | 141 | | | |
| Total appropriation | | [2] | | |

[1] Comparable applied costs are $219,895 in 1959, $3,580,000 in 1960, and $8,400,000 in 1961. Differences between costs and obligations are due primarily to the excess of foreign currency grants and contracts made over work completed in each year.

[2] An appropriation is recommended for 1960 equal to the dollar value of unexpended balances of previous foreign currency allocations under sec. 104(a) as of June 30, 1960, as indicated below under "Explanation of Language."

## Basis of Estimate

All oversea agricultural and forestry research utilizing foreign currencies under sections 104 (a) and (k) of Public Law 480 supplement and complements that financed by regular dollar appropriations available to the Department. The foreign projects do not duplicate or displace the domestic scientific research activities of the Department or of its cooperators, nor will they reduce the need for regular dollar appropriations for research.

The principal criteria which are applied to research conducted with foreign currencies are as follows:

1. Research projects are primarily of benefit to American agriculture. Usually they are mutually beneficial to both countries.

2. Research is undertaken in institutions having highly trained scientific personnel with specialized experience, techniques, facilities, or environmental conditions or material which permits them to conduct certain work more rapidly or efficiently than can be done in this country, or to attack problems upon which the Department has been unable to proceed.

3. Research is undertaken in both applied and basic fields; however, it is expected that a majority of the work will be of a fundamental or basic nature.

4. Projects, which may extend up to 5 years, are fully financed and totally obligated when agreements are executed. Payments are made in increments as the work progresses.

5. Initial arrangements are made through the Department of State and the agricultural attachés of the Foreign Agricultural Service of the Department of Agriculture on projects to be conducted abroad. Prior to executing any research agreement, the Department also consults with the agricultural atttachés and heads of missions to insure that conduct of the proposed projects would be consonant with the foreign policy of the United States.

Before a project can be intitiated, it is necessary (*a*) to conduct surveys to explore the possibilities for research which can be undertaken in foreign countries to the benefit of American agriculture; (*b*) for the foreign institution to develop a project proposal; (*c*) for Department of Agriculture scientists to review the project proposal and make necessary revisions in it; (*d*) to negotiate the final arrangement and the estimated amount of funds which will be required for the life of the project; and (*e*) to secure the approval of both parties to the agreement. Such arrangements necessarily take some time and may involve considerable effort before the final agreement is reached and the funds actually obligated. The ability to obligate funds by a specific date prior to the end of a fiscal year cannot be determined precisely in advance. In order that such preliminary work will not be wasted, the proposed appropriation language provides that unobligated amounts as of the end of the fiscal year shall continue available until expended.

**The estimates for 1961 are based on extensive surveys in foreign countries and review by the Department of projects submitted by foreign institutions. A full justification of the 1961 estimates is given in the following section.**

Mr. WHITTEN. Dr. Hilbert, we are glad to have you with us and we would like you to describe the various projects proposed to be financed by this appropriation and at this point I think I should ask you, unless you have the data here, that you supply the committee with suggested line projects, as you have. They will probably be somewhat voluminous, but we want that in the committee files at least, if it's too lengthy to go in the record.

Dr. HILBERT. All right, thank you. Would you like to hear me at this point?

Mr. WHITTEN. Yes, you can just report on that later.

FINANCING FOREIGN CURRENCY PROGRAM

Dr. HILBERT. Last year I described to this committee the status of our foreign research program which had been underway at that time for only 6 months. A part of our program was initiated under authority of Public Law 480, section 104(a). This subsection authorizes the use of foreign currencies to help develop new markets for U.S. agricultural commodities in foreign countries on a mutually benefiting basis. The funds made available for research for that work were provided initially by the Budget Bureau and not through appropriations from Congress.

The part of our program dealing with farm and forestry research was initiated under authority of Public Law 480, section 104(k). This was an amendment enacted in 1958. Funds for this program were provided initially through a dollar appropriation to the President, the dollars being used to purchase foreign currencies from the Treasury Department. The funds available for this year—that is, allocated by the Budget Bureau for the market development research program—amount to $18,029,531; the funds available for the farm and forestry research program amount to $3,888,300. For fiscal year 1961, it is the Budget recommendation that all foreign currency uses be covered by appropriations. The dollar appropriations will be used to purchase foreign currencies from the Treasury Department, and will be credited to the Commodity Credit Corporation to offset, in part, the cost of Public Law 480 shipments of agricultural commodities.

Under this budget change, new appropriation language is proposed; this is shown on page 121 of the explanatory notes. This appropriation language includes a request for $15,131,500 for the purchase of foreign currency for use in the market development and farm and forestry research programs. Of this total, it is provided that not less than $7,662,500 shall be available for the purchase of currencies which the Treasury Department determines are in excess of the normal needs of the United States.

At the present time, the Treasury Department has idle and unused balances of currencies in six countries. Those six countries are India, Pakistan, Egypt, Israel, Yugoslavia, and Poland. Therefore, not less than $7,662,500 would be used to purchase the foreign currencies of those countries.

In the prosecution of our overall research program, the balance of the $15,131,500 not used in "excess currency countries," or some $7.5 million, will be used to purchase foreign currencies in countries with which we have negotiated Public Law 480 agreements within the last few months, or with which we are expecting to draw up agreements during the next several months.

The countries involved are Brazil, Burma, Ceylon, Colombia, Greece, Indonesia, Peru, Spain, Turkey, and Uruguay. This appropriation language also specifies that there shall be merged with this appropriation any unexpended balances as of June 30, 1960, of the allocations made by the Bureau of the Budget for the purposes of section 104(a).

The funds requested for 1961—that is, the $15,131,500—can be broken down into two major activities: $3,090,000 for market development research and $12,041,500 for agricultural and forestry research. The $3,090,000 requested is $14,939,531 less than the funds available for 1960.

The funds requested for agricultural and forestry research are an increase of $8,153,200 over the funds available this year.

This past year, Public Law 480, section 104(a), was amended to provide that in the sale of agricultural commodities particular regard be given to the use of part of the funds for convertible purposes, in order to provide funds for market development activities in countries where the potential is good for hard dollar sales.

It is estimated that $1,261,500 of the funds requested for market development research would be in the form of convertible currency. This would enable us to initiate programs in countries such as Japan, West Germany, Holland, and Sweden, where excellent market development research can be conducted.

Mr. WHITTEN. Dr. Hilbert, it appears to me that this change will probably be good. Having this flow through the various subcommittees of the Appropriations Committee, I think will add to the orderly handling of this matter. I think it will aid us to get more results.

I think too it is well for the money to go to the Commodity Credit Corporation and to help restore its capital impairment. However, I would like to ask this question. Now, we deal here with the dollars that we would appropriate, since we happen to handle agriculture, including the Commodity Credit Corporation. To a degree, the subcommittee would be taking money out of one pocket and putting it in another, and we can see here the amount of dollars involved as we transfer it from direct appropriation over to CCC.

But when you say foreign currencies, is what you'll be spending after you buy this foreign currency?

Dr. HILBERT. Correct.

### ESTIMATED AVAILABILITY OF FOREIGN CURRENCIES

Mr. WHITTEN. Now, how much currencies are you going to get from this and what denominations—I mean, in what amounts, from what country; do you have any breakdown as to currency from each country and how much of this currency this would purchase so that we might get some idea of the spread?

Dr. HILBERT. Yes. When a Public Law 480 agreement is negotiated, it is on the basis of the going rate of exchange. In other

words, we will sell so many dollars' worth of agricultural commodities to a country and receive in return the foreign currency of the country at the specified rate of exchange. It is this rate of exchange we receive when we turn dollars over to the Treasury Department for foreign currency.

Mr. WHITTEN. I am sure that is true. I also know from my own investigations that frequently we sell commodities for their currency, but because the official rate is often less than half the actual rate we're not getting anything like the real value.

That's true in a number of countries. You explain the mechanics of converting these dollars into foreign currency. I know we follow the official rate. You are saying you'll take this many American dollars. Behind that, do you have any determination as to how many rupees that you will have and how many pounds in case you should deal with England? How much of the foreign currency will you have in each country after you buy it?

Dr. HILBERT. Yes; we do have those rates. I thought I had them with me.

Mr. STEPHENS. In the case of rupees, for example, Mr. Chairman, the conversion rate is 4.74 rupees for a dollar. All of our tables here are based on the dollar equivalents.

Mr. WHITTEN. I think it will be well to have it in the record. If our committee is going to do any good in trying to supervise the handling of this, I think we would have to know how you propose to translate these dollars under the present plan for the purchase of the particular currencies and have a statement showing how many rupees and how many various other currencies you will have.

Then, if we do our job properly, we are going to have to have you tell us in each country how many units of that currency will be used for project X and project Y and project Z and so forth.

Are you in the position to give us that?

Dr. HILBERT. We can provide that for the record.

(The information follows:)

*Special foreign currency program, fiscal year 1961, estimated by countries*

| Country | Estimated obligations [1] | | Market rate of foreign currency as of Dec. 31, 1959, to $1 |
|---|---|---|---|
| | U.S. dollar equivalent | Foreign currency units | |
| Brazil | $1,086,000 | 219,372,000 | 202.0 cruzeiros. |
| Burma | 255,000 | 1,204,875 | 4.7250 kyats. |
| Ceylon | 350,000 | 1,659,875 | 4.7425 rupees. |
| Colombia | 1,300,000 | 9,074,000 | 6.98 pesos. |
| Egypt | 202,000 | 89,863 | 0.444864 pound. |
| Greece | 162,000 | 4,860,000 | 30.0 drachmas. |
| India | 2,210,000 | 10,480,925 | 4.7425 rupees. |
| Indonesia | 314,000 | 14,130,000 | 45.0 rupiah. |
| Israel | 1,220,000 | 2,196,000 | 1.8 pounds. |
| Pakistan | 930,000 | 4,408,200 | 4.74 rupees. |
| Peru | 200,000 | 5,530,000 | 27.65 soles. |
| Poland | 2,051,000 | 112,805,000 | 55.0 zlotys. |
| Spain | 1,432,000 | 85,705,200 | 59.85 pesetas. |
| Turkey | 100,000 | 900,000 | 9.0 liras. |
| Uruguay | 2,270,000 | 25,333,200 | 11.16 pesos. |
| Yugoslavia | 1,049,500 | 787,125,000 | 750.0 dinars. |
| Total | 15,131,500 | ---------- | |

See footnotes on next page.

[1] Includes obligations of $1,261,500 for use in estimated conversions into currencies of other countries as follows:

| Country conversions | | Estimated obligations | | Market rate as of Dec. 31, 1959, to $1 |
|---|---|---|---|---|
| From— | To— | U.S. dollar equivalent | Foreign [a] currency units | |
| Brazil | The Netherlands | $21,000 | 79,131 | 3.768125 guilders. |
| Colombia | Japan | 50,000 | 18,000,000 | 360.0 yen. |
| Greece | The Netherlands | 62,000 | 233,624 | 3.768125 guilders. |
| | West Germany | 100,000 | 420,000 | 4.2 West deutsche marks. |
| | Subtotal | 162,000 | | |
| India | Japan | 50,000 | 18,000,000 | 360.0 yen. |
| | The Netherlands | 67,000 | 252,464 | 3.768125 guilders. |
| | West Germany | 133,000 | 558,600 | 4.2 West deutsche marks. |
| | United Kingdom | 200,000 | 71,428 | 0.35714 pound. |
| | Sweden | 50,000 | 258,750 | 5.175 kronor. |
| | Subtotal | 500,000 | | |
| Pakistan | Japan | 50,000 | 18,000,000 | 360.0 yen. |
| | West Germany | 58,500 | 245,700 | 4.2 West deutsche marks. |
| | United Kingdom | 61,500 | 21,964 | 0.35714 pound. |
| | Sweden | 50,000 | 258,750 | 5.175 kronor. |
| | Subtotal | 220,000 | | |
| Peru | Japan | 100,000 | 36,000,000 | 360.0 yen. |
| | Sweden | 100,000 | 517,500 | 5.175 kronor. |
| | Subtotal | 200,000 | | |
| Yugoslavia | The Netherlands | 50,000 | 188,406 | 3.768125 guilders. |
| | West Germany | 58,500 | 245,700 | 4.2 West deutsche marks. |
| | Subtotal | 108,500 | | |
| Total | | 1,261,500 | | |

[a] Foreign currency units of the country in which it is estimated the program would be conducted. The estimated amounts in the countries to which converted are as follows:

| | U.S. dollar equivalent | Foreign currency units | |
|---|---|---|---|
| Japan | 250,000 | 90,000,000 | 360.0 yen. |
| The Netherlands | 200,000 | 753,625 | 3.768125 guilders. |
| West Germany | 350,000 | 1,470,000 | 4.2 West deutsche marks. |
| United Kingdom | 261,500 | 93,392 | 0.35714 pound. |
| Sweden | 200,000 | 1,035,000 | 5.175 kronor. |
| Total | 1,261,500 | | |

*List of pending research projects being considered for activation in fiscal year 1961 under secs. 104 (a) and (k) of Public Law 480—Estimated cost*

| BRAZIL | *Brazilian cruzeiros* |
|---|---|
| Development of spot analyses for the quantitative identification of proteins, amino acids, and proteases in histological slices of corn, wheat, and sorghum kernels | 2,940,000 |
| A study of the kinetics of aerobic industrial fermentation by use of continuous processes, in order to obtain basic information of importance in fermentations utilizing cereal grains | 660,000 |
| Interference studies with the tristeza virus of citrus | 5,590,000 |
| Studies on zinc metabolism in tristeza-infected citrus plants by means of the radioactive isotope | 2,120,000 |
| Acarine disease of honey bees | 4,443,200 |
| Studies on berne (*Dermatobia hominis*), an insect pest of man and animals | 3,013,000 |
| Tropical and subtropical legumes and their utilization as forage for livestock | 17,900,000 |
| Sterilization of air by filtering in glass wool | 1,634,000 |
| Investigations on toxic plants injurious to cattle and other domestic animals | 14,960,000 |
| Dormancy and moisture relationships of crop seeds | 3,950,000 |
| Studies on the animal disease, babesidae, and its insect vectors | 4,281,000 |
| Inactivation of viruses in host plants | 5,620,000 |
| Determining antigenetic properties of important citrus viruses | 5,445,000 |
| Collection and evaluation of tropical and subtropical legumes | 14,460,000 |
| Basic research on the nature and cause of crown gall of cultivated plants | 700,000 |
| Biology and breeding of honey bees and bee flora | 9,760,000 |
| Breeding and genetics of eucalyptus | 9,777,000 |
| Preparation of foot-and-mouth disease vaccine in bovine kidney culture | 4,047,420 |
| Stem rust of wheat | 6,000,000 |
| Studies of the fire ant | 14,000,000 |
| Ecological and cytological studies of native species of grasses and legumes | 20,000,000 |
| Studies of diseases that attack the genus *Prunus* | 1,500,000 |
| Studies of the diseases of young animals | 20,000,000 |
| Studies of insects and diseases in plantations of North American tree species to provide the basis of formulating quarantine procedures that will prevent the introduction of destructive and catastrophic diseases and insect epidemics | 7,500,000 |
| Survey of the natural enemies of pests of plants of economic importance | 7,168,000 |
| Study on the nutrition of the peach tree | 4,000,000 |
| Total Brazilian cruzeiros | 191,468,620 |
| U.S. dollar equivalent | [1] $947,864 |
| Amount estimated in budget | $1,086,000 |
| Less amount for conversion | $21,000 |
| Total U.S. dollars | $1,065,000 |

| BURMA | *Burmese kyats* |
|---|---|
| Investigations of the extraction of edible oil from rice bran | 317,125 |
| Determination of new sources of tannin material | 340,200 |
| Survey of parasites of insect pests | 259,875 |
| Determining methods of preparing paper pulp from bamboo | 330,750 |
| Total Burmese kyats | 1,247,950 |
| U.S. dollar equivalent | $264,312 |
| Amount estimated in budget | $255,000 |

*List of pending research projects being considered for activation in fiscal year 1961 under secs. 104 (a) and (k) of Public Law 480—Estimated cost*—Con.

| | |
|---|---|
| **CEYLON** | *Ceylon rupees* |
| Biological control of Rhinoceros beetle | 260, 850 |
| Physiological and psychological studies of food preferences | 237, 200 |
| Evaluation of native breeds of cattle | 118, 600 |
| Basic study of phytophthora (parasitic fungi) under tropical conditions | 285, 600 |
| Survey for parasites and predators of noxious weeds | 308, 500 |
| Total Ceylon rupees | 1, 210, 750 |
| U.S. dollar equivalent | [1] $255, 324 |
| Amount estimated in budget | $350, 000 |
| **COLOMBIA** | *Colombian pesos* |
| Chemical modification of starches of agricultural origin | 375, 650 |
| Studies to determine the effect of processing temperature, of condition and of different methods of processing on the quality and stability of processed foods | 409, 800 |
| Studies of the biology, ecology, and natural enemies of the imported fire ant | 375, 650 |
| Studies of the biology, ecology, migratory habits and natural enemies of earworm, armyworm, hornworm, and other lepidoptera that are pests of field, truck, and vegetable crops | 341, 500 |
| "Enanismo" (dwarfing) virus diseases of small grains | 379,800 |
| Apical dominance in conifers | 522, 250 |
| Physical properties of Colombian hardwoods | 546, 400 |
| The thermal decomposition of wood | 546, 400 |
| Hydrolysis of wood and agricultural residues | 488, 100 |
| Studies to develop rapid methods for determining maturity of fruits | 443, 950 |
| Basic studies on fruit physiology during storage and ripening | 614, 700 |
| Marketing margins, pricing policies, and channels of distribution of beef | 307, 350 |
| Basic studies of cereal diseases | 641, 700 |
| Evaluation of native breeds of cattle | 307, 350 |
| Evaluation of the potential usefulness of breeds of beef cattle not now present in the United States | 683, 000 |
| Basic studies of animal diseases that are potential hazards to the livestock of the United States | 683, 000 |
| Basic studies of internal and external parasites of livestock | 546, 400 |
| Total Colombian pesos | 8, 213, 000 |
| U.S. dollar equivalent | [1] $1, 176, 648 |
| Amount estimated in budget | $1, 300, 000 |
| Less amount for conversion | $50, 000 |
| Total U.S. dollars | $1, 250, 000 |

See footnote, p. 423.

*List of pending research projects being considered for activation in fiscal year 1961 under secs. 104 (a) and (k) of Public Law 480—Estimated cost*—Con.

| EGYPT | *Egyptian pounds* |
|---|---|
| Investigations of the amylose-amylopectin ration in the major cereal starches, to provide a broader basis for increased utilization of cereal grains | 23,000 |
| Studies on the utilization of induced sexual sterility for control of the Mediterranean fruitfly | 33,360 |
| Identification of Egyptian insects as basis for more rigid control of quarantine regulations | 26,688 |
| Determination of pathogenicity of strains of cereal rusts | 20,240 |
| Virus diseases of citrus | 15,568 |
| Total Egyptian pounds | 118,856 |
| U.S. dollar equivalent | $267,092 |
| Amount estimated in budget | $202,000 |

| GREECE | *Greek drachma* |
|---|---|
| Total Greek drachma | 4,860,000 |
| U.S. dollar equivalent | $162,000 |
| Less amount for conversion | $162,000 |

| INDIA | *Indian rupees* |
|---|---|
| Effect of storage on dried milk under tropical conditions of the protein components of milk | 311,174 |
| Collection and isolation of molds belonging to the order Mucorales and classification of the isolates, in order to find microganisms suitable for fermentative processes of importance in cereal grain utilization | 237,125 |
| Study of survival and possible genetic change in industrially useful microorganisims subjected to lyophilization (freeze-drying) to obtain basic information needed for the maintenance of culture collections for industrial fermentation of cereal grains | 237,125 |
| Controlled climatology studies to determine effect on animal physiological reactions | 368,160 |
| Studies on presence of growth regulators in plants and plant parts with special reference to the roots of water hyacinth and seeds of tropical plants with large endosperm | 217,500 |
| Basic nutritional studies of insects | 91,050 |
| Physiological study on heat injury of potatoes in relation to decay | 91,500 |
| Studies on the fiber length, cell-wall thickness and fibril angle of some American and Indian timbers | 180,950 |
| Survey for parasites of gypsy moth in India | 235,400 |
| Studies on the growth and development of sub-tropical grasses with special reference to the species *Dichanthium* and *Iscilemna* | 64,656 |
| Search of predators and parasites on pests of crops like tobacco and cotton and developing methods of rearing them on a large scale under laboratory conditions | 73,381 |
| Studies on storage and cooking qualities of potatoes and their relationship to the application of different levels of fertilizers and soil-climatological factors | 91,500 |
| Treatments to reduce spoilage in various fruits and vegetables during transportation and storage | 917,000 |
| High protein diets in relation to *Hyperglycemia* | 266,000 |
| Hybridization of U.S. cane varieties with important Indian canes to produce hardy disease and pest resistant and early maturing superior basic material suitable for commercial breeding work | 123,980 |
| Study of blast disease of rice | 290,000 |
| Investigations of parasites, predators, and pathogens of sugarcane borers | 215,235 |

*List of pending research projects being considered for activation in fiscal year 1961 under secs. 104 (a) and (k) of Public Law 480—Estimated cost*—Con.

INDIA—continued

| | *Indian rupees* |
|---|---|
| Investigations of parasites, predators, and pathogens of paddy (rice) | 215, 235 |
| Investigations of parasites, predators, and pathogens of European corn borer and *Heliothis spp* | 202, 488 |
| Evaluation of peanut varieties for amino acid composition, quality of oil and agronomic characters | 251, 462 |
| Chemical constitution and metabolic behavior of helminth parasites in domesticated animals | 72, 800 |
| Studies on control of animal fertility through plant material added to the diet | 99, 200 |
| Nutritional physiology of different breeds of dairy cattle | 312, 000 |
| Investigation of leaf spot disease of maize | 130, 610 |
| Studies on the physiologic specialization of *Xanthomonas malvacearum* (Smith) causing black arm in cotton | 102, 290 |
| Physiology of the reproductive organisms of seed plants | 250, 000 |
| Scheme for isolation of antibiotics in plant disease control | 105, 000 |
| Study of the maize stalk rot diseases | 500, 000 |
| Studies on insect biochemistry | 236, 350 |
| Physiological studies to determine variations in ruminants in ability to utilize low grade forages | 424, 907 |
| Relation of nitrogen nutrition to disease development in rice plants affected with brown spot and blast | 260, 000 |
| Total Indian rupees | 7, 174, 078 |
| U.S. dollar equivalent | [1] $1, 517, 687 |
| Amount estimated in budget | $2, 210, 000 |
| Less amount for conversion | $500, 000 |
| Total U.S. dollars | $1, 710, 000 |

INDONESIA

| | *Indonesian rupiah* |
|---|---|
| Relationship of tenure system to capital accumulation, resource efficiency and income | 3, 336, 000 |
| Basic studies on Mentek disease of rice | 2, 452, 000 |
| Study of *Mycorrhizae* on *Pinus merkusii* | 1, 232, 000 |
| Ecological studies in tropical rain forest | 3, 000, 000 |
| Appraisal of native breeds of cattle | 1, 125, 000 |
| Survey of insects of potential economic importance to the United States and their natural enemies | 2, 250, 000 |
| Basic studies of *Phytophthora* (leaf disease) under tropical conditions | 1, 350, 000 |
| Total Indonesian rupiah | 14, 745, 000 |
| U.S. dollar equivalent | $327, 666 |
| Amount estimated in budget | $314, 000 |

ISRAEL

| | *Israeli pounds* |
|---|---|
| Investigations of the rheology of starch, to obtain fundamental information useful in the development of new outlets for cereal grains | 40, 000 |
| Investigations of the properties of processed soybean proteins by means of biochemical methods | 92, 000 |
| Virus diseases of fruit trees (especially citrus trees) | 171, 900 |
| Citrus rust-mite ecology | 102, 700 |
| Effect of ethylene dibromide fumigated feed on animals | 109, 400 |
| Influence of environmental conditions on population dynamics of the Khapra beetle | 54, 000 |
| Determination of the oestruscycle of cows as a means of increasing milk production | 16, 875 |

See footnote, p. 423.

*List of pending research projects being considered for activation in fiscal year 1961 under secs. 104 (a) and (k) of Public Law 480—Estimated cost*—Con.

| ISRAEL—continued | *Israeli pounds* |
|---|---|
| Prevention and control of chronic respiratory disease in chickens | 50,800 |
| Screening of world collection of barleys and utilization of Mediterranean wild barley as genetical material for breeding for disease resistance | 169,500 |
| The physiological basis of the tolerance of evergreen fruit trees to lime and saline soil and water conditions with special reference to avocado and citrus fruits | 140,500 |
| New crops screening of native plants of Israel of potential use in the agriculture of the United States | 328,600 |
| The halogenation of wood and the properties of the resulting product | 240,000 |
| Physiological and biochemical changes in fruits and vegetables during storage and marketing | 161,800 |
| Host-parasite interactions in relation to pathogenicity of fungi causing market diseases | 196,000 |
| Mechanism of appearance and disappearance of plant acids during maturation of citrus fruits | 100,500 |
| Research on compounds related to gibberellic acid | 100,000 |
| Basic research on the root system of the wheat plant and its relation to resistance to lodging | 35,000 |
| Total Israeli pounds | 2,109,575 |
| U.S. dollar equivalent | [1] $1,170,541 |
| Amount estimated in budget | $1,220,000 |

| PAKISTAN | *Pakistan rupees* |
|---|---|
| Studies on natural enemies of insect pests of West Pakistan forests | 190,385 |
| Basic research on season of hard-to-dry woods | 239,500 |
| Basic research on the physiology of fungi and marine borers attacking wood | 442,000 |
| Basic studies on the mechanisms that control fruit maturation, ripening and senescence | 428,416 |
| Seedborne pathogens of fungal and bacterial origin | 246,200 |
| Fundamental studies on rusts and smuts of small grains | 665,144 |
| Studies on the action of DDT and analogs to tolerant insects | 223,500 |
| Studies on indigenous natural enemies of scale insects | 533,130 |
| Investigations on the natural enemies of corn borers | 120,715 |
| Studies on the natural enemies of insect pests of rice | 149,460 |
| Toxonomic study of the insect pyralidae | 151,200 |
| Total Pakistan rupees | 3,389,650 |
| U.S. dollar equivalent | $713,913 |
| Amount estimated in budget | $930,000 |
| Less amount for conversion | $220,000 |
| Total U.S. dollars | $710,000 |

| PERU | *Peruvian soles* |
|---|---|
| Total Peruvian soles | 5,520,000 |
| U.S. dollar equivalent | $200,000 |
| Less amount for conversion | $200,000 |

See footnote, p. 423.

*List of pending research projects being considered for activation in fiscal year 1961 under secs. 104 (a) and (k) of Public Law 480—Estimated cost*—Con.

POLAND

| | *Polish zlotyes* |
|---|---|
| Use of *B. Thurengensis* for control of *Ephistia Kuhnella* (Mediterranean flour beetle) | 2, 750, 000 |
| Nutritional requirements of mites important to stored products | 2, 475, 000 |
| Relation of Mycorrhizae to growth and disease susceptibility of Douglas-fir and Scotch pine | 2, 000, 000 |
| Influence of soil moisture levels and precipitation on increment of trees and stands of Pinus silvestris | 3, 300, 000 |
| Basic research on the biological and chemical control and protection of young forest stands against injurious insects | 2, 200, 000 |
| The influence of hypothalamus on secretion of gonadotrophics in cows | 3, 575, 000 |
| Investigations on heterosis problems of animals conducted by morphological, physiological, and biochemical methods | 2, 200, 000 |
| Phytopathological studies of onion downy mildew | 2, 200, 000 |
| Methods for determining trace elements in forage crops | 1, 925, 000 |
| Basic studies of blood groups in swine | 2, 475, 000 |
| Studies on wild birds as carriers of animal diseases | 3, 025, 000 |
| Studies on the physiological causes of loose smut of barley | 2, 200, 000 |
| Insecticides from hydrocarbons of terpines and camphor | 1, 925, 000 |
| The importance of structural fractions of different soils taken from under different plants to the fertility of the soil and its productivity | 2, 640, 000 |
| Genetical studies on Rhizobium | 2, 475, 000 |
| Effects of certain chemical agents on TB in cattle | 2, 500, 000 |
| Basic studies on the transplantation of ova in sheep | 2, 750, 000 |
| Winter hardiness of red clovers | 2, 000, 000 |
| The action of antibiotic substances upon viruses, chemical features of these substances and the ways they influence viruses and plants | 2, 475, 000 |
| Reclamation of soils after surface mining | 2, 200, 000 |
| The effects of dusts and smokes on soils in industrial areas | 1, 925, 000 |
| The influence of different storage temperatures on mother bulbs of onions | 1, 925, 000 |
| Total Polish zlotys | 53, 140, 000 |
| U.S. dollar equivalent | [1] $966, 182 |
| Amount estimated in budget | $2, 051, 000 |

SPAIN

| | *Spanish pesetas* |
|---|---|
| Influence of the nonstarch constituents of the rice endosperm on quality characteristics and physiochemical properties of both raw and precooked rice | 1, 163, 300 |
| Basic studies of the genetics of corn breeding | 1, 585, 000 |
| Basic studies on the nutrition of the banana plant and symptoms of deficiencies, excesses, and nutrient imbalance | 2, 956, 000 |
| Basic studies of the cereal rusts of Spain | 3, 070, 000 |
| Plant breeding by induction of polyploidy | 2, 400, 000 |
| Basic studies on the nutritional requirements of olive trees for optimum fruit or oil production | 11, 070, 000 |
| New crops screening of native plants of Spain, of potential use in the agriculture of the United States | 5, 356, 000 |
| Basic studies on the influence of moisture as a factor determining the fertility of different soil types | 1, 420, 000 |
| Forage value of the principal existing species in the pastures of the mountains of the semiarid regions of Spain | 2, 981, 000 |
| Genetic resistance to insect attack in poplars and basis for resistance | 4, 060, 000 |

See footnote, p. 423.

*List of pending research projects being considered for activation in fiscal year 1961 under secs. 104 (a) and (k) of Public Law 480—Estimated cost*—Con.

SPAIN—continued

| | *Spanish pesetas* |
|---|---|
| Chemistry of essential oils from woody plants | 1,623,000 |
| Relation between environment and wood quality in poplar and pine | 10,222,000 |
| Chemistry of extracts of seed, pods, leaves, bark, and wood of honey locust | 1,054,000 |
| Suitability of woods from Spanish Guinea for rotary and sliced veneer | 4,990,000 |
| Investigations on wood combustion | 29,815,000 |
| Total Spanish pesetas | 83,765,300 |
| U.S. dollar equivalent | [1] $1,396,083 |
| Amount estimated in budget | $1,432,000 |

TURKEY

| | *Turkish lire* |
|---|---|
| The giant liver fluke in Turkey; its snail host, its distribution, and its bioeconomics | 179,000 |
| Etiological investigations of bovine urinary bladder tumors due to enzootic bovine hematuria in Turkey and its relation to bovine papilloma agent | 202,500 |
| Foot-and-mouth virus types in Turkey, virus production in tissue cultures and comparative studies with cattle, sheep, goat, and guinea pig kidney tissues, etc. | 540,000 |
| Total Turkish lire | 921,500 |
| U.S. dollar equivalent | $102,333 |
| Amount estimated in budget | $100,000 |

URUGUAY

| | *Uruguayan pesos* |
|---|---|
| Preparation, characterization, and evaluation of derivatives of gossypol derived from cottonseed, for use as biological active materials, ultraviolet absorbers, and other valuable products | 700,000 |
| Determination of the fundamental chemical, and physical properties of the globulin proteins of barley and wheat | 1,100,000 |
| Improvement in methods for the preservation of agricultural products | 655,000 |
| Immunization against animal parasites | 880,000 |
| Investigations to determine fungi, bacteria viruses, nematodes, and other biological agents and insects for use in the control of water-hyacinth and alligator-weed | 467,500 |
| Exploration and introduction of seeds and plants for agronomic improvement of U.S. crops | 478,000 |
| Phytopathological and entomological research on disease of grapevines | 385,000 |
| Study of parasites and predators of insects destructive to plants | 485,000 |
| Studies on the biology, ecology, and natural enemies of white-fringed beetles | 495,000 |
| Studies on the "fire ant" | 201,500 |
| Studies on diseases of insect pests | 330,000 |
| Relations between the system of land tenancy and agricultural productivity | 274,500 |
| Total Uruguayan pesos | 6,451,500 |
| U.S. dollar equivalent | [1] 578,091 |
| Amount estimated in budget | $2,270,000 |

See footnote, p. 423.

*List of pending research projects being considered for activation in fiscal year 1961 under secs. 104 (a) and (k) of Public Law 480—Estimated cost*—Con.

| YUGOSLAVIA | *Yugoslavian dinars* |
|---|---|
| Research on the dynamics of the population of the gypsy moth and methods for its control | 52, 500, 000 |
| Genetic studies of cold and rust resistance in wheat | 45, 000, 000 |
| Genetic evaluation of the value of crossbreeding swine for the improvement of meat quality | 75, 000, 000 |
| Total Yugoslavian dinars | 172, 500, 000 |
| U.S. dollar equivalent | [1] $230, 000 |
| Amount estimated in budget | $1, 049, 000 |
| Less amount for conversion | 108, 500 |
| Total U.S. dollars | $940, 500 |

*List of pending research projects being considered for activation in fiscal year 1961 under section 104(a), Public Law 480, using estimated conversions into currencies of the indicated countries*

[In dollars]

| JAPAN | *Estimated cost* |
|---|---|
| Evaluation of U.S. varieties of soybeans for making tofu, to increase their utilization in Japan | $60, 000 |
| Evaluation of dehulled soybeans from U.S. varieties for making Miso, to increase their utilization in Japan | 50, 000 |
| Development of a vegetable milk by using U.S. soybean proteins as a basis for development of new markets for soybeans in Japan | 90, 000 |
| Investigations of the "oxo" reaction with unsaturated fatty acids and esters from animal fats, to obtain basic information for developing new outlets for inedible animal fats | 75, 000 |
| Investigations of the dehydrogenation of saturated fatty acids, esters, and alcohols from animals fats, to obtain basic information for developing new outlets for inedible animal fats | 75, 000 |
| Development of improved instrumentation and clamps for evaluating the strength of cotton | 75, 000 |
| A comprehensive investigation of the minor constituents of cottonseed, particularly those that adversely affect the quality of processed oil and meal | 100, 000 |
| Comparative investigations of the cooking and starch-pasting properties of United States and Asiatic rice varieties, with a view to obtaining information on U.S. varieties with processing characteristics of increased acceptability in Asiatic markets | 75, 000 |
| Total dollars | 600, 000 |
| Total Japanese yen | 216, 000, 000 |
| Amount estimated in budget | 250, 000 |

| NETHERLANDS | |
|---|---|
| Investigations of the mechanism of stale flavor development in dry milk, particularly with respect to the role of lipids in the process | 75, 000 |
| Investigations of the reactions of the glutamic acid residues of wheat gluten protein with a view to increasing water solubility with a minimum of molecular breakdown, in order to provide a basis for development of new products of commercial value from wheat gluten | 75, 000 |

See footnote, p. 423.

*List of pending research projects being considered for activation in fiscal year 1961 under section 104(a), Public Law 480, using estimated conversions into currencies of the indicated countries*—Continued

[In dollars]

| | Estimated cost |
|---|---|
| NETHERLANDS—continued | |
| Investigations of the production of levoglucosan from starch in high yield by a low-cost process | $75,000 |
| Development of a test for brittleness and other properties of cotton fibers causing abnormal amounts of short fibers as a result of processing | 90,000 |
| Investigation of new methods for enhancing the reactivity of cotton for chemical modification of impregnation | 100,000 |
| An investigation of the preparation of cottonseed protein for analysis for individual amino acids, without loss or destruction of the amino acids present | 75,000 |
| Correlation of solanine content and its distribution in potato tubers with time and intensity of exposure of freshly harvested potatoes to sunlight, in order to obtain fundamental information on "greening" and its effect on potato processing | 75,000 |
| Total dollars | 565,000 |
| Total Netherlands guilders | 2,129,120 |
| Amount estimated in budget | $200,000 |
| WEST GERMANY | |
| A study of directed substitution reactions of starch by determination of the position of constituents introduced in the etherification reaction, as a means of increasing the utilization of cereal grains | 125,000 |
| Isolation and chemical characterization of isomeric fatty acids formed during the catalytic hydrogenation of soybean oil, to provide information basic to improving the flavor stability of this oil and expanding its use in export trade | 125,000 |
| Basic studies of the physical and chemical properties of tanned collagen fibers to obtain fundamental information on the criteria controlling the comfort factors associated with leather articles of handwear, footwear, and garments to improve the competitive position of leather with respect to substitutes and enhance the utilization of hides and skins | 125,000 |
| Preparation of phosphine compounds, particularly phosphine analogs of ammonia compounds, and their application to the cross-linking of cotton to improve its physical properties | 110,000 |
| Development of new fluorochemical compounds for application to cotton to impart stain and soil resistance | 100,000 |
| Preparation of metallo-organic complexes of cellulose in fiber form as a method of developing cotton textiles with improved physical properties | 100,000 |
| Investigation of the effect of light of specific wavelengths on the deterioration of cotton, dyed cotton, and chemically modified cotton | 125,000 |
| A fundamental study of aerodynamic principles and their application in cotton processing to the separation of trash and nonspinnable fibers | 100,000 |
| Development of new-type edible emulsifiers from cottonseed oil for use in food products and cosmetics | 100,000 |
| A comprehensive investigation of the mutual solubilities of the triglycerides of refined, bleached, and hydrogenated cottonseed oil | 120,000 |
| A systematic investigation of the chemical and physiological properties of gossypol | 100,000 |
| Total dollars | 1,240,000 |
| Total West German marks | 5,208,000 |
| Amount estimated in budget | $350,000 |

*List of pending research projects being considered for activation in fiscal year 1961 under section 104(a), Public Law 480, using estimated conversions into currencies of the indicated countries*—Continued

[In dollars]

| | Estimated cost |
|---|---|
| **UNITED KINGDOM** | |
| Preparation of cationic cereal starch derivatives for use in paper and textiles by the introduction of quaternary phosphonium and tertiary sulfonium groups into noncross-linked and cross-linked starches, to create new and expand old markets for starch from cereal grains | $70,000 |
| A fundamental study of processes for improving the crease resistance of cotton fabrics | 125,000 |
| An investigation of the chemistry, including the detailed molecular structure, of the carbohydrate components of soybeans, with special reference to the polysaccharide constituents | 100,000 |
| Investigation of the preparation of new derivatives of fatty acids by alkali isomerization in nonaqueous systems, in order to discover new applications important to the increased utilization of soybean and linseed oils | 70,000 |
| A fundamental study of factors controlling the interaction between casein and rennet in the manufacture of dairy products | 50,000 |
| Total dollars | 415,000 |
| Total United Kingdom pounds | 148,196 |
| Amount estimated in budget | $261,500 |
| **SWEDEN** | |
| Preparation of nitrogen derivatives of starch having a carbon-to-nitrogen bond, without degradation of the parent starch molecule, to develop products leading to increased utilization of cereal grains | 70,000 |
| Synthesis and characterization by mass spectrometry and other advanced physical procedures of pure monoenoic and dienoic fatty acids that are formed in the catalytic hydrogenation of soybean oil, to provide information basic to improving the flavor stability of this oil and expanding its use in export trade | 80,000 |
| Fundamental investigations of changes effected in yarn and fabric construction by chemical modification of cotton and the changes thereby resulting in the yarn and fabric properties | 90,000 |
| A fundamental investigation of cellulose, including its characterization, its mechanism in the degradation of cotton, and methods of inhibition | 110,000 |
| A comprehensive study of the physical properties and characteristics of cotton linters | 100,000 |
| Studies of factors influencing the oxygen permeability of the fat globule membrane in whole milk powder | 50,000 |
| Investigations of the constituents of butterfat—particularly porphyrins and related compounds—that affect flavor stability | 60,000 |
| Total dollars | 560,000 |
| Total Swedish krona | 2,898,000 |
| Amount estimated in budget | $200,000 |

[1] Other research will be developed as the mechanics of working with Government agencies and other research institutions of these countries are clarified.

Mr. WHITTEN. What, in effect, we are doing is passing judgment on spending of foreign currency in a foreign country for a particular project. In that way we might go along or not go along. We'll have to voice our sentiment by action on that currency and then translate it back to changes that we might make in the dollars we appropriate.

ORGANIZATION FOR CONDUCTING RESEARCH ABROAD

Dr. HILBERT. This foreign currency research program cuts across the activity of a number of agencies in the Department, the Agricultural Marketing Service, the Forest Service, and a number of groups in the Agricultural Research Service.

In order to provide for coordinated and centralized administration of the foreign research program, the Foreign Research and Technical Programs Division was organized and set up in the Agricultural Research Service. This Division is guided in its coordination by the Policy and Program Development Board. The Board consists of Mr. Ioanes, Deputy Administrator, Foreign Agricultural Service; Dr. Herrmann, Deputy Administrator, Agricultural Marketing Service; Dr. Irving, Deputy Administrator for Utilization Research and Dr. Byerly, Deputy Administrator for Farm Research, of our Agricultural Research Service; Dr. Harper, Assistant Chief for Research, Forest Service; and Mr. Starkey, Deputy Assistant Administrator, Agricultural Research Service.

I am a member of the Board also.

CRITERIA FOR FOREIGN RESEARCH

The Board has developed criteria for setting up our foreign research program. The first and most important is that all research initiated be primarily for the benefit of American agriculture. Usually the research is mutually beneficial to both countries. We have negotiated no research agreements which would intensify competition for our commodities in foreign countries and do not plan to do so. In other words, we are not planning to carry out any research abroad dealing with the development of higher yielding varieties of cotton in cotton-producing countries, or higher yielding varieties of wheat. Such projects have been brought to our attention in foreign countries, but we have turned down all such requests.

ADEQUATE FOREIGN RESEARCH FACILITIES

Another criterion is that research be carried out in institutions having adequate facilities available to do the research, and well-trained personnel and scientists with specialized experience. We are interested, particularly, in negotiating research agreements on projects where the institute has available unusual ecological or environmental conditions, or raw materials that are not available to us.

That is the type of research which can be done better abroad and certainly more cheaply.

BASIC RESEARCH DESIRABLE

Another criterion, desirable for research abroad, is that as much of it as possible be basic research. The major portion of the program abroad will be in the field of basic research—one of our great needs in the United States. New basic research is needed for new developments and new discoveries.

The life of the projects initiated may extend up to 5 years. These projects are fully financed at the time they are executed. In other

words, at the time of signing, the agreement for the project, we obligate all of the funds required to complete the job.

In all our arrangements, all our contacts and communications flow through our agricultural attaché in the foreign country in which the research program is carried out. This is in order to keep him abreast of the overall program. He has the opportunity to review and advise on research work we are planning to carry out in that country.

PUBLICATION OF RESEARCH RESULTS

The Policy and Program Development Board also has developed a policy on publications. All of the results of the research work will be published. It has developed the policy also that all patents resulting from this foreign research program be dedicated to the Secretary of Agriculture and available to the American public.

CONTROL OVER THE PROGRAM

The Board has reviewed and approved the various clauses in our grant or contract document. One of the important clauses which enables us to maintain control of the research program conducted by the foreign institutions is the provision that we do not turn over to them all the funds agreed upon when the costs are determined initially.

When the grant is executed, we request the foreign research institute to submit to us an estimate of the funds needed for the first 4 months. At the end of the 4 months, the grantee submits a fiscal report, a technical progress report, and an estimate of funds needed for the next 4 months.

Obviously, if the technical progress is not satisfactory, and if for any reason we wish to cancel the agreement, we can do so before we have advanced more funds. We believe by such arrangements we are maintaining full control of the program.

THE FOREIGN RESEARCH AGREEMENT

I have a copy of the research agreement; perhaps you may wish to have it included in the record.

Mr. WHITTEN. We'd be glad to have it included in the record at this point.

(The information referred to follows:)

GENERAL PROVISIONS APPLICABLE TO FOREIGN AGRICULTURAL RESEARCH GRANTS

(1) Funds advanced pursuant to this grant will be placed in a special account and used only for the purposes outlined in the proposal identified in the attached grant letter dated _____. Any proposed deviations therefrom must have the advance written consent of the authorizing officer.

(2) The maximum obligation of the U.S. Government under this proposal shall be limited to

(3) This project shall be completed within ____ years after the date on which the attached grant letter is concurred in by your organization.

(4) The authorizing officer shall make an advance payment as soon as possible after concurrence in the attached grant letter by the grantee.

(5) Except for the initial period, the report for this project will be 4 calendar months ending on _____ of each year. The grantee shall furnish to the Agricultural Research Service as soon as possible after each report period: (*a*) a fiscal report on forms to be furnished by the authorizing officer which will show the actual amounts of money obligated by the grantee in behalf of

this proposal; (*b*) a brief, but descriptive narrative progress report of the scientific aspects of the research clearly indicating significant factors with respect to the progress of the work; and (*c*) a statement of the estimated financial requirements for the following report period, clearly indicating any overages or shortages obtained from the prior report period, together with explanation of significant changes in financial requirements anticipated for specific purposes. Based on the conclusions reached as a result of the evaluation of these reports, the authorizing officer will authorize as soon as possible a progress payment for the next report period in an amount consistent with the estimated rate of expenditure as indicated by these measures.

(6) Should there remain in the possession of the grantee an unexpended balance in this project at the end of the grant period or the termination of the project, whichever comes first, this amount will be returned to the authorizing officer by the grantee without demand.

(7) Currency revaluation: It is recognized that during the period this project is in effect official action may be taken to revaluate the medium of exchange within the country in which the research is being conducted. This will have a direct bearing upon the amount of work which can be performed with the money to be provided by this grant. Therefore, should the value of the internal foreign currency fluctuate not more than 10 percent, either up or down, as a result of an official revaluation an appropriate adjustment in the remaining work program will be worked out mutually. Should the plus or minus fluctuation exceed 10 percent an appropriate adjustment in the program may be worked out mutually or either party may call for a renegotiation of the program costs for the incompleted portion thereof.

(8) Records and reports: In addition to any records and reports specifically mentioned above, the grantee shall furnish (1) an annual progress report satisfactory to the authorizing officer, summarizing the work done, emphasizing any important technical developments achieved during the year and outlining plans for future work, the first such report to be due as soon as possible 1 year after the date of execution of this grant; (2) a final report in a form suitable for publication including all pertinent technical data satisfactory to the authorizing officer, summarizing the work done, the results accomplished, and the conclusions drawn therefrom. The grantee shall maintain such records as may be required and shall furnish such reports with respect to the status and progress of the project as the authorizing officer shall require. It is preferred that all reports and other communications be transmitted in English if this can be done with facility. If this is not feasible, reports shall be prepared in the official language of the country in which the research is being conducted.

(9) Access to facilities, records, and accounts: Accredited representatives of the U.S. Government shall have access at any reasonable time to the plant, laboratories, offices, or other facilities utilized in connection with the project, for purposes of inspection and observation of the status and progress of the project, and all data, information, records, reports, and accounts of the grantee relating to the project shall be made available to these representatives and all such data, information, records, reports, and accounts shall be maintained available for inspection a minimum of two years beyond the termination date of this grant. Officers and employees of the grantee, or other personnel, assigned to or engaged in the conduct of the project shall be available for consultation with such representatives at any reasonable time.

(10) Research assistance: No contract, grant, or other arrangement shall be made by the grantee with any other party for performing all or any portion of the project without the advance written approval of the authorizing officer.

(11) Official travel performed by grantee's representatives in connection with this grant outside of the country in which the research is being performed must have the advance written approval of the authorizing officer.

(12) The negotiation of this project included certain provisions for the procurement of specific items of nonexpendable equipment (list of equipment attached) which cannot be modified except by advance written approval by the authorizing officer.

(13) Covenant against contingent fees: The grantee warrants that no person or selling agency has been employed or retained to solicit or secure this grant upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the organization for the purpose of securing business. For breach or violation of this warranty, the authorizing officer shall

have the right to annul this grant without liability, or in his discretion, to deduct from the grant amount or consideration the full amount of such commission, percentage, brokerage, or contingent fee.

(14) This grant may be terminated at any time by mutual agreement of the grantee and the authorizing officer or by the authorizing officer alone. In the event of termination, the grantee shall furnish a report as required by the authorizing officer, summarizing the work done, the results accomplished, and the conclusions resulting therefrom. The authorizing officer shall have payment made, upon presentation of proper claim, for the cost of the work performed by the grantee at the time of such termination, less any funds previously paid, and shall not be liable for any further claims; provided the claim submitted by the grantee shall not exceed the amount of total obligation stated in the grant. For this purpose cost will include such costs as were considered chargeable to this grant at the time of its negotiation. In the event of termination, any payments made to the grantee for which services have not been rendered by the grantee shall be returned to the authorizing officer.

(15) Personal benefits: No Member or other Delegate to the U.S. Congress, or a U.S. Resident Commissioner, shall be admitted to any share or part of this grant or to any benefit that may arise therefrom, unless it be made with a corporation for its general benefit.

(16) Patent provisions and publication of results: The public shall be granted all benefits in the United States of America of any patentable results of all research and investigations conducted under this grant, through dedication, assignment to the Secretary of Agriculture, United States of America, publication, or such other means as may be determined by the authorizing officer. Rights to patentable results in countries other than the United States of America shall be in accordance with the policy of the grantee; provided that an irrevocable, nontransferable, and royalty-free license to practice such invention throughout the world be issued to the U.S. Government.

(*a*) With respect to patentable results and in accordance with the foregoing paragraph, the grantee agrees—

(1) To cooperate in the preparation and prosecution of any U.S. patent application which the Department of Agriculture may decide to undertake covering the subject matter above described;

(2) To execute all papers requisite in the prosecution of such U.S. patent application including assignments to the United States and dedications;

(3) To secure the cooperation of any employee of the grantee in the preparation and the execution of any such papers as may be required in the prosecution of such U.S. patent application or in order to vest title in the subject matter involved in the United States, or to secure the right of free use in the public of the United States. It is understood, however, that the making of prior art searches, the preparation, filing, and prosecution of patent applications, the determination of questions of novelty, patentability, and inventorship as well as other functions of a U.S. patent attorney are excluded from the duties of the grantee.

(*b*) Nonpatentable results: Results of research or investigations and information concerning the project, which the authorizing officer determines will not form the basis of a U.S. patent application, shall be made known to the U.S. public in such manner as determined by the authorizing officer. Publication of such results in any country other than the United States shall be in accordance with the policy of the grantee; provided the U.S. Government may publish such results in any country should the grantee fail to do so. It is understood and agreed that manuscripts prepared for publication by either party shall be submitted to the other party for suggestions prior to publication. Such credit or recognition, as mutually agreed upon, or the contribution made by the other party is assumed by the party publishing the material. (In the case of publication by the grantee, 100 reprints shall be supplied to the authorizing officer.)

(17) Period of grant: This grant shall take effect upon acceptance of the research proposal by the authorizing officer and concurrence in the terms and conditions hereof by the grantee and shall remain in force and effect until completion of the work, but not to exceed — years unless terminated as provided herein; provided, however, extension of time may be granted by the authorizing officer for good cause.

Mr. WHITTEN. Doctor, I don't know, perhaps I should let you finish your statement but I guess this is just as good a time to ask it.

In dealing with this subject here where we are transferring funds from one pocket to the other, we are dealing with foreign currencies that otherwise, insofar as we can see, would not be used for the direct interest of the United States, even though you might argue that the projects in their development of those foreign countries would be in the overall beneficial to the United States; we are authorizing in advance these funds for your use to set out and see what contracts you can enter into and just what you want to do.

Are you in the same category here as in other research items in regard to the regular research? In those you come before us with specific projects for which you ask specific money for which you have specific plans.

Now, is that true with regard to these foreign currencies? Are you asking us to give you these currencies in advance so that within certain limits and describing only the broad field in which you expect to operate?

Dr. HILBERT. We have definite plans, definite projects that we would like to have attacked abroad. When we started this program, we were handicapped from the standpoint that we did not have very good information on foreign research institutes in many of the countries in which we were planning to work. In such cases, it was necessary to make a survey of the research facilities, to determine the expert knowledge that might be available, as well as discuss projects in which we were interested and upon which the institutes might be able to work.

For example, a little over a year ago, I surveyed the Fiber and Forest Products Research Institute in Israel. While there, I obtained an overall picture of their program. They had just completed studies on the development of a new method for measuring the crimp of wool. The crimp of wool is a rather important property from the standpoint that it confers a degree of elasticity to the fabric. I explored their possible interest in carrying out a parallel study on cotton—that is, to study the changes in the crimp of cotton during various processing operations. This is a problem I know the Department would want. It is important, and we would like to have it financed.

Another problem the Israeli institute had been working on for over a period of 10 years was on the oxidation of cellulose. As a matter of fact, the scientist responsible for that work has attained an international reputation in the field, and just a few months ago, won the equivalent of a $1,000 prize from the Swiss Government for the work he had done on cellulose.

I explored with him the possibility of carrying out similar work on cellulose—to study the mild oxidation of cellulose, which is important to our cotton industry since one of the major processing steps in bleaching cotton is a mild oxidation. In commercial laundries and in our home laundries we overbleach in order to be sure of whitening cotton. and that affects the strength of the cotton fabric.

I also asked whether he could carry out research or parallel studies on cereal starches—the mild oxidation of starch.

Mr. WHITTEN. Off the record.

(Discussion off the record.)

Dr. HILBERT. I was certain that the Regional Research Laboratory did not have underway studies on the oxidation of cereal starch and had no work underway on the mild oxidation of cotton. I suggested that he prepare research proposals and outlined his plan of work in detail.

That proposal—we call it a proposal—(in a sense this is a misnomer since we request it)—was then turned over to our subject matter specialist in the Department for review to insure there is no duplication of research, and for evaluation from the standpoint of importance. As the result of this review and evaluation we may find it desirable also to make suggestions—for instance, on the varieties of cotton that should be investigated from the standpoint of crimping characteristics.

The project is then sent back for concurrence. Following that, the costs are negotiated and the grant executed. A good part of our program has been develop that way.

Mr. WHITTEN. Now, we come back to my original question Doctor, and I am sure there wasn't any effort to avoid it. How much of this request is for firm agreements and how much of it is just so that you will have the capacity to enter into agreements as the situation develops and as you work out these arrangements? How much of this is firm? I realize that this is a fairly new area and completely new to this committee. I want the record complete on it.

Dr. HILBERT. Well, Mr. Chairman, I have a list of the titles of all these research agreements which have been executed during the last year.

Mr. WHITTEN. How voluminous are those, Doctor?

Dr. HILBERT. The list is about nine pages long.

Mr. WHITTEN. I think that that might well be in the record at this point, particularly since this field is new. It might be well to put a little more information in the record than we might otherwise have.

(The information referred to follows:)

## FOREIGN RESEARCH PROJECTS FOR WHICH AGREEMENTS HAVE BEEN EXECUTED OR NEGOTIATED

In addition to the 11 grants listed as executed in the House appropriations hearings for 1960, there follows a listing of (*a*) the projects executed since, (*b*) those which have been negotiated and the grant documents have been prepared and sent abroad for signature, and (*c*) research projects recently negotiated. The listing is by section 104(a) and section 104(k) of Public Law 480, and grouped according to program; that is, farm, forestry, marketing, and utilization research. The title, institution conducting the research, and the amount are shown for each project.

A. Foreign research projects for which grants have been executed (since House appropriation hearings, February 27, 1959):

### SECTION 104 (a) OF PUBLIC LAW 480

#### UTILIZATION RESEARCH

*Finland*

Investigations of lactic acid bacteria growth promoting factors to obtain basic information on their nature, structure, and physiological mechanism of action, as a basis for improvement of the manufacture of cheese and quality of

the resulting product. Institute of Biochemistry, University of Turku, Turku. $56,991 (UR–E8–(60)–1).

Investigation of the influence of micro-organisms on flavor development and other chemical changes in dry sausage, to obtain information useful in producing sausage of improved quality and increased consumer acceptance. Research Institute of Meat Technology, Biochemical and Bacteriological Laboratory, Hameenlinna. $41,377 (UR–E8–(60)–4).

Fundamental studies of the transmission of flavor constituents and other biologically active compounds from the feed of dairy cattle to milk, to obtain information useful in the development of means for minimizing such transport. Biochemical Institute, Helsinki. $253,108 (UR–E8–(60)–5).

*Italy*

A fundamental study of the effects of temperature and temperature variations encountered in transportation and distribution on quality changes in canned concentrated peach and apricot purees, as a contribution to expansion of markets for canned fruits. Experiment Station for Food-Preserving Industries, Parma. $33,344 (UR–E15–(30)–11).

A fundamental investigation of the chemical and physical changes occurring in beef during the processing steps involved in canning, in order to obtain basic information that can be applied to improving the quality of canned beef. Experiment Station for Food-Preserving Industries, Parma. $61,136 (UR–E15–(60)–13).

*United Kingdom*

A fundamental study of the pyrolysis of cotton cellulose to provide information needed for improvement of flame-resistant treatments for cotton. British Cotton Industry Research Association, Shirley Institute, Didsbury, Manchester, England. $107,938 (UR–E29–(20)–9).

A fundamental investigation of the chemical structure of wool-type proteins (keratins): A study of the penetration into keratins of charged molecules, to gain a knowledge of fiber structure that may lead to improved wool fibers of uniformly high quality. Wool Industries Research Association, Torridon, Headingley, Leeds, England. $53,428 (UR–E29–(20)–11).

Studies of the effects upon baking quality of composition variations in wheat flour lipids, as influenced by variety and conditions of growth, as a contribution to the expansion of wheat flour utilization. British Baking Industries Research, Herts., England. $82,446 (UR–E29–(10)–14).

A fundamental study of the isolation, purification, and characterization of specific enzymes which attack the components of animal connective tissue, to obtain information applicable to the control of freezer damage and improvement of the quality of meat. Department of Scientific and Industrial Research, Cambridge, England. $101,796 (UR–E29–(60)–15).

A fundamental study of wool yarn lubrication in relating to knitting action and the appearance of knitted loops to provide a basis for development of more economical knitting operations and knit wool fabrics of improved quality, thus strengthening the competitive position of wool. Hosiery and Allied Trades Research Association, Nottingham, England. $42,906 (UR–E29–(20)–22).

A fundamental investigation of the biochemical properties of pork muscle as they are related to pigment formation and color fixation during curing. British Food Manufacturing Industries Research Association, Surrey, England. $57,096 (UR–E29–(60)–24).

A fundamental investigation of the influence of phytin on the texture of dry peas during maturation, as a contribution to expansion of markets for vegetables through increased knowledge of the factors influencing quality. Fruit and Vegetable Canning and Quick Freezing Research Association, Chipping Campden, Glos., England. $83,989 (UR–E29–(30)–27).

Application of paper chromatography and allied techniques to differentiation of the micro-organisms important in dairy products, in order to obtain data useful in the scientific control of manufacturing procedures for producing dairy products of improved quality. National Institute for Research in Dairying (University of Reading), Shinfield, Reading, England. $89,039 (UR–E29–(60)–31).

Fundamental studies on the reaction of sucrose with constituents of vegetable and animal fats and oils, to produce new and useful compounds having special hydrophilic and lipophilic characteristics. Tropical Products Institute, London, England. $91,841 (UR–E29–(50)–33).

Investigation of the preparation and properties of esters, anhydrides, hydrazides, pseudohalides, fluorides, and related compounds of the phosphonitrilic chlorides for use in preparing new products to increase the utilization of cotton. Birkbeck College, University of London, London, England. $53,200 (UR–E29–(20)–35).

A study of chemical reactions for polymerizing glucose and glucose derivatives to form new high-molecular-weight compounds, as a basis for the development of new outlets for cereal grains and other starch-rich crops. Arthur D. Little Research Institute, Inveresk, Scotland. $162,047 (UR–E29–(10)–36).

Investigations of the structure and properties of cereal starches—particularly corn and wheat starches—and their interaction with enzymes and other proteins, to obtain fundamental information concerning the structure and behavior of cereal starches, that would be useful in starch processing. University of Birmingham, Birmingham, England. $98,259 (UR–E29–(10)–40).

SECTION 104(k) OF PUBLIC LAW 480

FORESTRY RESEARCH

*Finland*

The role of mycorrhizae (various fungi) in tree nutrition and growth, and the possible association of abnormal mycorrhizae with tree disease. University of Helsinki, Helsinki. $40,383 (E8–FS–31).

Regional comparisons between the actual cuttings, cutting plans, growth, and forest resources. Theory, interpretation and analyses of selected countries. University of Helsinki, Helsinki. $15,466 (E8–FS–40).

B. Approved research projects which have been negotiated and the grant document sent abroad for final signature:

SECTION 104(a) OF PUBLIC LAW 480

UTILIZATION RESEARCH

*Israel*

Investigating the synthesis and chemical and physical properties of multichain polymers and copolymers comprised of amino acids derivable from the cereal grain proteins, gliadin and zein, as a contribution to the increased utilization of cereal grains. Weizmann Institute of Science, Rehovot, Israel. $112,277.68 (UR–A10–(10)–1).

A study of crimp in cotton fibers and its relationship to other fiber properties, as well as its effect on processing performance and product quality. Institue for Fibers and Forest Products Research, Jerusalem. $230,666.44 (UR–A10–(20)–5).

*Finland*

Investigation of continuous multistage countercurrent crystallization of linseed and soybean fatty acids as a practical method for producing pure unsaturated fatty acids, to provide a basis for new or improved uses of linseed and soybean oils. University of Helsinki, Malmi (Helsinki). $70,650 (UR–E8–(40)–2).

Fractionation of gelatin and soluble collagen proteins by electroosmotic and ion-exchange techniques, and characterization of the fractions by chemical and physicochemical means, to provide fundamental information that may contribute to expanded utilization of hides and skins. University of Turku, Faculty of Medicine, Turku. $63,627 (UR–E8–(60)–3).

Isolation of organic phosphorus derivatives found in the yeast Torulopsis utilis and elucidation of their structure, to provide new basic information on the fermentation of cereal products to industrial materials by yeasts. Biochemical Institute, Helsinki. $82,102.11 (UR–E8–(10)–6).

*Italy*

Investigation of red heat and other defects caused by microbial action in hides exported from the United States, to obtain information useful in preventing these difficulties. Ministry of Industry and Commerce, Poggioreale 39, Naples. $53,382 (UR–E15–(60)–5).

Investigations of tanning methods for conversion of U.S. cattle hides into sole-leather in Italian tanneries, to further the utilization of U.S. hides for leather-making in Italy. Ministry of Industry and Commerce, Poggioreale 39, Naples. $64,291.47 (UR–E15–(60)–7).

An investigation of the minor constituents of linseed oil and their effect on the ability of linseed oil films to spread and adhere to surfaces, as a contribution to the expansion of markets for linseed oil. Ministry of Industry and Commerce, Experimental Station for Fats and Oils, Milan. $81,827.70 (UR–E15–(60)–8).

Investigating the controlled thermal polymerization of soybean and linseed oils, and the separation and characterization of the reaction products, in order to obtain information useful in expanding and improving the industrial applicablility of these oils. Ministry of Industry and Commerce, Experimental Station for Fats and Oils, Milan. $51,715.27 (UR–E15–(40)–9).

*Spain*

Development of methods and equipment for determining the irregularity of transparency of the card web and for counting of neps, by means of electronic devices, as aids to improving product quality of cotton textile operations. Patronato "Juan de la Cierva" de Investigacion Tecnica, Barcelona. $27,964.02 (UR–E25–(20)–1).

Determination of the relationship between the cohesion of cotton fibers and other physical properties of fibers, rovings, and yarns, as a step in improving product quality and processing efficiency. Patronato "Juan de la Cierva" de Investigacion Tecnica, Barcelona. $24,939 (UR–E25–(20)–21).

Investigations of ion-exchange procedures for removing prooxidant metals from soybean oil, in order to contribute to expanded utilization of soybean oil through improvement of its flavor and oxidative stability during transportation, storage, and use. Instituto de la Grasa y sus Derivados, Seville. $36,337 (UR–E25–(40)–4).

Isolation and characterization of yeasts for placement in the culture collection of the Agricultural Research Service, as potential agents for the conversion of farm-produced raw materials to products useful to industry and the consuming public. National Institute for Agronomic Investigations, Madrid. $48,764 (UR–E25–(10)–11).

Determination of the effect of drafting forces in high-draft systems on the uniformity and strength of cotton yarns, as a step in improving product quality and processing efficiency. Patronato "Juan de la Cierva" de Investigacion Tecnica, Barcelona. $28,046 (UR–E25–(20)–13).

*United Kingdom*

Causes and control of discoloration in processed potato products: Investigations of enzymes and substrates involved in darkening during the processing steps that precede blanching. Department of Scientific and Industrial Research, Low Temperature Research Station, Cambridge, England. $101,169.70 (UR–E29–(30)–16).

Development of new uses for soybean and linseed oils through investigations of organometallic derivatives and complexes as components of protective coatings having improved properties. Research Association of British Paint, Colour, and Varnish Manufacturers, Paint Research Station, Middlesex, England. $91,425 (UR–E29–(40)–29).

A study of the factors governing the onset of oxidative rancidity in oats and oat products. Research Association of British Flour-Millers, Cereals Research Station, Herts., England. $61,505 (UR–E29–(10)–39).

## Section 104(k) of Public Law 480

### FARM RESEARCH

*Turkey*

New crops screening of native plants of Turkey of potential use in the agricultures of the United States. University of Ankara, Department of Agronomy, Ankara. $134,068.98 (A22–CR–1).

### FORESTRY RESEARCH

*Pakistan*

Investigations on the predators of the balsam woolly aphid on fir trees. Commonwealth Institute of Biological Control, Pakistan Station, Rewalpindi. $50,593.12 (A17–FS–5).

*Finland*

Determining types of soil bacteria involved in the aerobic degradation of lignin. College of Agriculture and Forestry, University of Helsinki, Helsinki. $16,454 (E8–FS–39).

C. Research proposals negotiated, but grant documents not yet prepared:

SECTION 104(a) OF PUBLIC LAW 480

MARKETING RESEARCH

*Finland*

Studies of the stability of post-harvest insecticides and fungicides on plant products and their effect on food quality. Department of Nutritional Chemistry, College of Agriculture, University of Helsinki, Helsinki. $56,630 (E8–AMS–1).

Studies on the contamination and deterioration of market milk by nonpathogenic bacteria. Department of Microbiology, College of Agriculture, University of Helsinki, Helsinki. $23,423 (E8–AMS–2).

*Spain*

The development of objective methods for measuring market quality of raw and precooked rice. Patronato "Juan de la Cierva" de Investigacion Tecnica, Valencia. $19,388 (E25–AMS–1).

UTILIZATION RESEARCH

*India*

Studies on the isolation and use of milk coagulating enzymes of microbiological origin for cheese manufacture. National Dairy Research Institute, Karnal. $51,238.43 (UR–A7–(60)–5).

*France*

Quantitative estimation of certain phosphorus compounds in flours from selected types of wheat, and determination of the effect of phytates on the solubility of specified proteins important to the quality of flour in baked products. Laboratoire de Biochimie et Physico-Chimie des Cereales, Paris (UR–E9–(10)–43).

SECTION 104(k) OF PUBLIC LAW 480

FARM RESEARCH

*India*

Investigating citrus fruit virus diseases dieback and decline. Indian Agricultural Research Institute, New Delhi. $107,938.50 (A7–CR–3).

Survey of beneficial parasites and predators of agricultural and horticultural crop pests in the Indian Union. Indian Agricultural Research Institute, New Delhi. $122,942.61 (A7–ENT–2).

Survey for natural enemies of witch weed, water hyacinth, and other weeds affecting waterways, drainage, and ditches in India. Commonwealth Institute of Biological Control, Bangalore. $103,151 (A7–ENT–7).

Survey for natural enemies of the European corn borer, corn earworm, and related *Heliothis* species in India. Commonwealth Institute of Biological Control, Bangalore. $42,984 (A7–ENT–9).

Study of the acarine disease problem of honey bees (caused by the parasitic mite *Acarapis woodi*). Government Agricultural College and Research Institute, Ludhiana. $34,548 (A7–ENT–10).

*Israel*

Prevention and control of chronic respiratory diseases in chickens. Hebrew University, Rehovot. $28,222 (A10–ADP–2).

The screening of collections of cultivated barleys and related species for resistance to barley disease pathogens. Agricultural Research Station, Rehovot, Beth-Dagan. $94,028 (A10–CR–1).

Quantitative inheritance of characters influencing lint yield and quality in cotton. Hebrew University, Rehovot. $23,750 (A10–CR–2).

The root system of spring wheat with reference to its influence on lodging resistance. Hebrew University, Rehovot. $19,489 (A10–CR–3).

The physiology of rest period and its application to fruit growing. Agricultural Experiment Station, Beit Dagan. $73,667 (A10–CR–8).

New crops screening of potentially useful plants. Agricultural Experiment Station, Beit Dagan. $115,556 (A10–CR– ).

Determining biotic and physical factors affecting population dynamics of the citrus rust mite, and the effect of various chemicals on reproduction. Agricultural Experiment Station, Beit Dagan. $107,666 (A10–ENT–1).

Increased exploitation of free air nitrogen by leguminous plants. Agricultural Experiment Station, Beit Dagan. $83,278 (A10–SWC–4).

*Pakistan*

Life history studies and biological control of water hyacinth. Department of Plant Protection, Dacca, East Pakistan. $67,608 (A17–CR–2).

Biological control of harmful insects of Pakistan by fungi which affect insects. Department of Plant Protection, Karachi. $65,811 (A17–ENT–1).

Studies on the insect enemies of noxious weeds such as nut grass, witchweed, Halogeton, thistles, hoary cress, sage, and toadflax. Commonwealth Institute of Biological Control, Rawalpindi. $39,004.16 (A17–ENT–9).

*Finland*

Pathology of nutritional muscular dystrophy in cattle. State Veterinary Medical Institute, Helsinki. $28,236 (E8–ADP–1).

Determining breeding value of cattle by means of blood antigen tests. Department of Animal Breeding, Agricultural Research Centre, Tikkurila. $59,850 (E8–AH–1).

Intensifying of polyploid breeding in clover species. Department of Plant Breeding, Agriculture Research Centre, Jokioinen. $19,458. (E8–CR–4).

Evaluation of genetic changes in Finnish-bred clover varieties grown in North America. Department of Plant Husbandry, Agricultural Research Centre, Tikkurila. $48,227 (E8–CR–5).

Population dynamics of the plant hopper *Calligypona pellucida* (F.) and the nature of this insect's injury to oats and spring wheat. Department of Pest Investigations, Agricultural Research Centre, Tikkurila. $42,912 (E8–ENT–1).

The relation of management and planning to success in farming. Department of Agricultural Economics, University of Helsinki, Helsinki. $43,609 (E8–FE–1).

Economics of alternative uses of land for agriculture and forestry. Ministry of Agriculture, University of Helsinki, Helsinki. $32,193 (E8–FE–2).

*Poland*

Control of the liver fluke in domestic ruminants by chemotherapy and destruction of the snail intermediate hosts. Department of Parisitology, Veterinary Institute, Pulawy. $38,698. (E21–ADP–1).

Study of the changeability of biological properties of viruses, especially the Newcastle disease virus in chicks. Laboratory on General Virology, Institute of Veterinary Research, Pulawy. $15,643 (E21–ADP–2).

Secretion of anterior pituitary hormones and ovulation in small ruminants. Institute of Animal Physiology, Academy of Science, Warsaw. $11,497 (E21–AH–1).

Meat color in pork, as influenced by heredity, sex, age, feeding, and management of animals. Institute of Animal Physiology and Nutrition, Polish Academy of Sciences, Warsaw. $42,565 (E21–AH–2).

Studies of antivirus substances and their influence upon viruses and host plants. Institute of Plant Breeding and Acclimatization, Zelazna (a substation of Warsaw). $6,778 (E21–CR–3).

Studies on the nature of plant resistance to soil nematodes. Institute of Plant Protection, Helminthological Laboratory, Poznan. $8,309 (E21–CR–5).

Evaluation of the East-European and Asiatic fruit species and varieties recently introduced into Poland. Research Institute of Pomology, Skierniewice. $11,618 (E21–CR–6).

Studies on growth promoting substances and inhibitors in apple trees during different stages of its development. Research Institute of Pomology, Skierniewice. $13,418 (E21–CR–7).

Epiphytology of apple scab, a fungus disease of apple trees. Research Institute of Pomology, Skierniewice. $9,918 (E21–CR–8).

The influence of environmental factors on buttoning (formation of very small-like flowers) of cauliflowers. Institute of Vegetable Production, Polish Academy of Sciences, Skierniewice. $3,215 (E21–CR–9).

Weed control in maize and effect on crops in rotation. Agricultural College, Department of Soil Cultivation and Crop Rotation, Krakow. $19,617 (E21–CR– ).

Studies on biological control of aphids and scale insects and the effects of pesticides on the natural enemies of these pests. Research Institute of Pomology, Skierniewice. $10,800 (E21–ENT–2).

The influence of some vitamins on the physiology of the Colorado potato beets. Institute of Plant Protection, Poznan. $7,600 (E21–ENT–3).

Cause and role of diapause in insect pests. Institute of Plant Protection, Poznan. $6,011 (E21–ENT–4).

Studies on the different susceptibility of red spiders to acaricides and on cholinesterases in red spiders as influenced by acaricides. Institute of Pomology, Skierniewice. $10,472 (E21–ENT–5).

The nature of infections in insects caused by protozoa. Institute of Plant Protection, Poznan. $5,173 (E21–ENT–6).

The importance of structural fractions of different soils obtained from under different plants on the fertility of the soil. Central College of Agriculture, Warsaw. $11,822 (E21–SWC–1).

Influence of various cultivation methods and of the action of structure-forming plants in a crop rotation upon the micro and macrostructure and texture of soil. Department of Soil Cultivation and Crop Rotation, College of Agriculture, Wroclaw. $17,484 (E21–SWC–2).

*Spain*

New crops screening of native plants of Spain, of potential use in the agriculture of the United States. Instituto Nacional de Investigaciones Agronomicas, Madrid. $89,266 (E25–CR–11).

FORESTRY RESEARCH

*India*

Woodworking qualities (machining, peeling, slicing, etc.) of Indian timbers. Forest Research Institute and College, Dehra Dun. $71,538 (A7–FS–3).

Accelerated laboratory investigations on durability of wood. Forest Research Institute and College, Dehra Dun. $42,645 (A7–FS–5).

Accelerated laboratory investigations on termite resistance of woods. Forest Research Institute and College, Dehra Dun. $34,429 (A7–FS–6).

Survey for natural enemies of balsam wooly aphids attacking silver fir and spruce trees in the Himalayas. Commonwealth Institute of Biological Control, Bangalore. $73,241 (A7–FS–7).

*Israel*

New fire protective treatments for wood through chemical modification of the middle lamella. (NOTE.—The middle lamella is the layer of intercellular material, composed chiefly of pectins, that cements together adjacent cells.) Institute for Fibres and Forest Products Research, Jerusalem. $133,333 (A10–FS–1).

*Finland*

Studies of the most important factors controlling the quantity and quality of natural seed crops of forest trees. Forest Research Institute of Finland, Helsinki. $41,873 (E8–FS–1).

Factors affecting the impregnability of wood. State Institute for Technical Research, Helsinki. $28,434 (E8–FS–9).

Moisture, temperature, time, and strength relations for three main Finnish tree species (Scotch pine, spruce, and birch), and the influence of these factors on the woods' internal stresses, with attention to drying schedules. State Institute for Technical Research, Helsinki. $36,210 (E8–FS–10).

Chemical and physical studies on the accessibility of cellulose fiber from wood. State Institute for Technical Research, Helsinki. $63,339 (E8–FS–18).

Developing increment methods of forecasting growth and inventory of large forest stands. Institute of Forest Mensuration and Management, University of Helsinki, Helsinki. $14,120 (E8–FS–30).

Improved forest survey methods. Institute of Forest Mensuration and Management, University of Helsinki, Helsinki. $40,652 (E8–FS–32).

The importance of soil temperature, height of water table, and microclimate as growth factors of pine, spruce, and birch trees. Forest Research Institute of Finland, Helsinki. $39,965 (E8–FS–36).

Investigation of the orientating stimuli guiding forest insect pests to suitable host trees. Institute of Agricultural and Forest Zoology, University of Helsinki, Helsinki. $49,466 (E8–FS–38).

Develop methods of determining growth and yield in forests. Forest Research Institute of Finland, Helsinki. $43,561 (E8–FS–43).

Genetics of the flowering forest trees, particularly the problem of infertility. Forest research Institute of Finland, Helsinki. $56,097 (E8–FS–44).

*Poland*

Influence of soil moisture levels and precipitation on growth of Scotch pine and spruce tree stands. Forest Research Institute, Warsaw. $14,082 (E21–FS–1).

Biological and chemical control of forest insects. Forest Research Institute, Warsaw. $36,959 (E21–FS–2).

Disease and insect susceptibility of North American forest tree species planted in Poland. Forest Research Institute, Warsaw. $18,529 (E21–FS–3).

Relation of mycorrhizae (various fungi) to growth and disease susceptibility of Douglas-fir and Scotch pine trees. Department of Microbiology, Forest Research Institute, Szczecin. $14,141 (E21–FS– ).

*Spain*

Diseases of native and exotic pine and fir trees in Spain. Forest Research Institute, Madrid. $40,933 (E25–FS–5).

Parasites, predators, and disease of the gypsy moth in Spain. Forest Research Institute, Madrid. $59,066 (E25–FS–10).

MARKETING RESEARCH

*Pakistan*

Biology and insecticidal control of the khapra beetle, an insect which affects mostly stored grains and seeds. Department of Plant Protection, Karachi. $79,095 (A17–AMS–1).

*Finland*

Basic studies on decay of apples during storage in relation to physiological and compositional changes in the fruit and characteristics of the microorganisms. Department of Plant Pathology, Agricultural Research Centre, Tikkurila. $36,340 (E8–AMS–4).

*Poland*

Reducing ascorbic acid in apples in storage. Institute of Pomology, Skierniewice. $15,909 (E21–AMS– ).

Dr. HILBERT. This list includes all those research agreements which have been negotiated and for which documents have been prepared and are being sent abroad for signature.

It includes also the titles of all those research agreements which have been negotiated during the last few months but which have not yet been executed. There are 20 agreements ready for signature; 78 proposals have been negotiated but the agreements have not yet been drawn up and executed.

I can give you a partial breakdown of the subject matter area of these agreements. For example, 10 agreements on cotton, involving utilization and marketing research have been executed and negotiated; 10 on cereal; and 6 on dairy products. The other utilization and marketing research agreements deal with hides and skins, oils and fats, oilseeds, fruits, and vegetables.

In the area of farm and forestry research, the biggest categories of research projects involve biological control. We have negotiated

13 research agreements in the field of biological control; 5 in the field of plant exploration; and 10 in the field of animal, plant, and bee diseases.

I can read to you just a few of the titles if you would like a picture of the kind of research we are doing in this area. For example, in India we have negotiated an agreement on the survey for natural enemies of witch weed, water hyacinth, and other weeds affecting waterways, drainage, and ditches.

The water hyacinth we have comes from that part of the world, and we are interested in finding out its natural enemies so that we can introduce them here and help control water hyacinth.

Another project in India concerns a survey of the natural enemies of the European corn borer, corn ear worm, and related species. In Pakistan, we have negotiated an agreement on studies on the insect enemies of noxious weeds such as nut grass, witch weed, halogeton, thistles, hoary cress, sage and toadflax.

I believe these are all weeds which have been introduced from abroad inadvertently. In their native habitat they have enemies, on which we would like to obtain more information. This is the kind of research we can't do in the United States.

Another project deals with the biological and insecticidal control of the khapra beetle, an insect which affects mostly stored grains and seeds. Another project in Poland deals with studies on biological control of aphids and scale insects and the effect of pesticides on the natural enemies of these pests. In Spain, we are undertaking a project on parasites, predators, and diseases of the gypsy moth.

That gives you a picture of the kinds of projects we are financing in the field of biological control.

### TYPES OF FOREIGN RESEARCH INSTITUTIONS

Mr. WHITTEN. Now, in that field, we have a variety of contractors on the other end, but by and large, who are you contracting or reaching your agreements with—the governments or institutions or with private operations?

Dr. HILBERT. They are with research institutions, mostly government financed. Most of our research agreements are signed by the director of the research institute, and the funds are made directly available to the institute.

We prefer making our agreements directly with the institution rather than with the foreign government. A number of governments wish to have the agreements signed by, say, a deputy minister of agriculture or a coordinator who may be set up by the government.

Then he wishes to turn the funds over to the research institute, but we are rather concerned about that because he may wish to approve the purchase of supplies and the appointment of personnel, which certainly would cut back on the efficiency of the project. In other words, we prefer to deal directly with the institution which will be conducting the research.

On the other hand, all of our initial contacts are through the official channels of the government. In England, our contacts are through the Ministry of Agriculture and Foods, and with the Department of Scientific and Industrial Research.

In turn, they direct us to the research institute with which we carry out our detailed discussions.

EFFECT OF FOREIGN RESEARCH ON DOMESTIC RESEARCH PROGRAMS

Mr. WHITTEN. Doctor, through this means, do you contemplate that this will reduce the present level of research activity in this country because you can gradually do more of it there? Do you contemplate by doing it there that you might get around the increase that might otherwise be necessary in this country? Which way do you see it?

Dr. HILBERT. Well, it will not result in a decrease in the appropriations for the study of our agricultural problems at this time, but over the years to come, these are problems which we certainly would be attacking with appropriated dollars, and by carrying this work out with foreign currencies, I think it will result in a saving of appropriated dollars in the future.

APPROPRIATIONS FOR USE OF FOREIGN CURRENCIES DISTINGUISHED FROM REGULAR APPROPRIATIONS

Mr. WHITTEN. In view of the fact that someone might read this and wonder why after helping all these foreign countries we are turning around and paying $15 million for their currencies, for the record, these foreign currencies have already been generated.

Dr. HILBERT. Correct.

Mr. WHITTEN. And they have been generated under agreements which preclude this Government from in turn converting them back into dollars.

Dr. HILBERT. Yes.

Mr. WHITTEN. And our purpose is to find some use that would contribute to U.S. interest in those particular countries. I'm right, generally, am I not?

Dr. HILBERT. That is true.

Mr. WHITTEN. So this means that appropriating dollars here is to charge this work to agricultural appropriations that are then credited to the Commodity Credit Corporation's activities in the same budget. Through this process, we are getting these foreign currencies which are otherwise unusable to us except in that country devoted to problems which we think are important that we solve for our own benefit.

Dr. HILBERT. That's right, sir.

Mr. WHITTEN. Of course, in each case, if these answers are obtained, it will be of benefit to that country as well, I take it. For that reason they are interested in going into these contracts with you.

Dr. HILBERT. That's right.

Mr. GRANT. Mr. Chairman, I wonder if I could add just one point on this. Some of these currencies are on hand and on deposit right now. Some of them are anticipated under agreements which will be signed between now and next June 30th. This means that some of the currencies will be coming in within the next few months and during 1961, and that all of them aren't actually on deposit as of this time.

Mr. WHITTEN. Thank you. I appreciate that information.

Now, you have, in your prepared text, listed these countries where this work will go on and where it is now?

Dr. HILBERT. I have a tabulation here which provides this information.

Mr. WHITTEN. And where it will come from in the future.

Dr. HILBERT. Yes.

(The tabulation follows:)

*Authorizations and obligations estimated for agricultural research under Public Law 480, fiscal years 1958–61*

[In U.S. dollar equivalents in thousands]

| | 1958, sec. 104(a) | 1959 | | | 1960 | | | 1961 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Sec. 104(a) | Sec. 104(k) | Total | Sec. 104(a) | Sec. 104(k) | Total | Sec. 104(a) | Sec. 104(k) | Total |
| Authorized (or transferred) | 400 | 7,596 | 2 | 7,598 | 12,257 | 3,898 | 16,155 | 3,090 | 12,041 | 15,131 |
| Unobligated balance brought forward | | 29 | | 29 | 5,973 | | 5,973 | | | |
| Unobligated balance carried forward | 29 | 5,973 | | 5,973 | | | | | | |
| Unobligated balance returned | | | | | 200 | 10 | 210 | | | |
| Total available or estimated | 371 | 1,652 | 2 | 1,654 | 18,030 | 3,888 | 21,918 | 3,090 | 12,041 | 15,131 |
| Obligations, total | 371 | 1,652 | 2 | 1,654 | 18,030 | 3,888 | 21,918 | 3,090 | 12,041 | 15,131 |
| By category: | | | | | | | | | | |
| Farm research | | | | | | 1,926 | 1,926 | | 7,200 | 7,200 |
| Utilization research | 371 | 1,652 | | 1,652 | 17,725 | | 17,725 | 2,448 | 937 | 3,385 |
| Human nutrition research | | | | | | | | | 346 | 346 |
| Marketing research | | | | | 305 | 209 | 514 | 642 | 238 | 880 |
| Forest research | | | 2 | 2 | | 1,753 | 1,753 | | 3,320 | 3,320 |
| Total | 371 | 1,652 | 2 | 1,654 | 18,030 | 3,888 | 21,918 | 3,090 | 12,041 | 15,131 |
| By agency: | | | | | | | | | | |
| ARS | 371 | 1,652 | | 1,652 | 17,725 | 1,926 | 19,651 | 2,448 | 8,483 | 10,931 |
| AMS | | | | | 305 | 209 | 514 | 642 | 238 | 880 |
| FS | | | 2 | 2 | | 1,753 | 1,753 | | 3,320 | 3,320 |
| Total | 371 | 1,652 | 2 | 1,654 | 18,030 | 3,888 | 21,918 | 3,090 | 12,041 | 15,131 |
| By country: | | | | | | | | | | |
| Brazil | | | | | | | | 325 | 761 | 1,086 |
| Burma | | | | | | | | | 255 | 255 |
| Ceylon | | | | | | | | 200 | 150 | 350 |
| Colombia | | | | | | | | 400 | 900 | 1,300 |
| Egypt [1] | | | | | 612 | 150 | 762 | | 202 | 202 |
| Finland | | 300 | 2 | 302 | 461 | 710 | 1,171 | | | [2] |
| France | | | | | 1,955 | | 1,955 | | | [2] |
| Greece | | | | | | | | 162 | | 162 |
| India [1] | | | | | 1,711 | 427 | 2,138 | 550 | 1,660 | 2,210 |
| Indonesia | | | | | 256 | | 256 | | 314 | 314 |
| Israel [1] | 371 | | | | 1,180 | 585 | 1,765 | 140 | 1,080 | 1,220 |
| Italy | | 55 | | 55 | 2,454 | | 2,454 | | | [2] |
| Pakistan [1] | | | | | 609 | 323 | 932 | 220 | 710 | 930 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Pakistan [1] | | | | | 609 | 323 | 932 | 220 | 710 | 930 |
| Peru | | 5 | | 5 | 1 | | 1 | 200 | | 200 |
| Poland [1] | | | | | 3,041 | 730 | 3,771 | 150 | 1,901 | 2,051 |
| Spain | | | | | 1,453 | 250 | 1,703 | 50 | 1,382 | 1,432 |
| Turkey | | | | | 257 | 150 | 407 | | 100 | 100 |
| United Kingdom | | 1,292 | | 1,292 | 1,519 | 338 | 1,857 | | | (2) |
| Uruguay | | | | | | | | 510 | 1,760 | 2,270 |
| Yugoslavia [1] | | | | | 2,521 | 225 | 2,746 | 183 | 866 | 1,049 |
| Total | 371 | 1,652 | 2 | 1,654 | 18,030 | 3,888 | 21,918 | 3,090 | 12,041 | 15,131 |
| By area: | | | | | | | | | | |
| Europe | | 1,647 | 2 | 1,649 | 13,404 | 2,253 | 15,657 | 545 | 4,149 | 4,694 |
| Asia | 371 | | | | 4,013 | 1,485 | 5,498 | 1,110 | 4,269 | 5,379 |
| Africa | | | | | 612 | 150 | 762 | | 202 | 202 |
| Latin America | | 5 | | 5 | 1 | | 1 | 1,435 | 3,421 | 4,856 |
| Total | 371 | 1,652 | 2 | 1,654 | 18,030 | 3,888 | 21,918 | 3,090 | 12,041 | 15,131 |

[1] Excess currency countries: 1958, sec. 104(a), 371; 1960, sec. 104(a), 9,674, sec. 104(k), 2,440, total, 12,114; 1961, sec. 104(a), 1,243, sec. 104(k), 6,419, total, 7,662.

[2] Excludes funds committed in prior fiscal years for general operating expenses in fiscal year 1961.

RESEARCH ACCOMPLISHMENTS TO DATE

Mr. WHITTEN. Doctor, I realize you've been in this field a very limited time, but do you have up to this point, any significant results or have you made any sufficient progress in any of the contracts or agreements you have had in the past that are worthy of mention?

Dr. HILBERT. For most of these agreements that have been executed, the research is just getting underway. There has been significant progress made, however, on one of our projects, and that is one in Finland.

It is probably the largest one negotiated from the standpoint of the costs. This agreement——

Mr. WHITTEN. Just to keep the record straight, when you say from the standpoint of costs, I believe we just cleared the record to show that it really wasn't costing us anything. You mean the amount of currency involved?

Dr. HILBERT. That is correct.

This project is conducted by Professor Virtanen, who is the only scientist in the field of agriculture who has ever received a Nobel prize. I believe he has 10 to 12 scientists, including professionals and some professional workers, following the effect of different feeds on the quality and flavor of milk.

During the past year he has been investigating various mustards, cabbage types of plants, turnips, to find out what are the flavor materials in these plants, and he has found one new type of sulfur compound for the first time.

He is tracing its fate through the animal, through the milk and its effect on the flavor of milk. This is rather important because this particular series of sulfur compounds he has found also have goitrigenic activity. Weeds that the animal eats are not only undesirable from the standpoint of flavors introduced into the milk but also they appear to have biological activity.

His laboratory has already issued four publications, which we think is remarkable progress since he started this work just several months ago.

SUPERVISION OF RESEARCH WORK

Mr. WHITTEN. I asked you that. Now, let me ask you this question. What type of supervision do you attempt to exercise or are these folks on the other end of these agreements in full control?

In other words, do you give them an end result that's desired and do they have to have complete rules as to how to go about it, or do you have something of a cooperative arrangement so far as keeping current on developments. In other words, how sure are you going to be that we will be familiar with a step-by-step testing in experimentation and how certain can we be that the end result if it comes out good will be made available to us—not trying to make any accusations. I just meant, how do we know that the end product will be available to us and the step-by-step developments will be made available?

Dr. HILBERT. We have two types—really three types—of review. We get progress reports from the foreign research institutions every 4 months, and we get an annual report. There is also some technical

supervision provided by the regional office which we have set up in Rome.

Supervisors in the Rome office plan to visit the foreign scientists usually every six months of every year. In addition to that type of a review, we have a critical technical review provided by a subject matter specialist in the Department.

In the case of some agreements it may be necessary to send one of our subject matter specialists to the institute only once during the life of an agreement. We believe, however, that it may be necessary in some cases to have our subject matter specialists visit an institute once a year, perhaps even stay there for some time.

For example, with projects in the field of insects which might be destructive to our own crops, such as projects in Egypt, Pakistan, and India, we certainly want to have our own insect experts sit down and review the work of the foreign scientists with them. We would want to get complete information on the insects they have identified to insure they have been identified correctly; this is a matter of first importance to us in view of the fact that our quarantine officials will need this kind of information, will need precise and correct information on the insects which we should prevent from entering the United States.

There are then, three different types of review.

Dr. BYERLY. Mr. Chairman, may I supplement Dr. Hilbert's remarks concerning this particular entomological field because it illustrates several points.

We maintain in Europe and Asia and Africa a corps of about five entomologists paid from our regular annual dollar appropriations whose function is to seek parasites and predators which could be introduced to help control our insect pests, also to find beneficial insects for introduction into this country. Through these projects financed with foreign currencies, and using the foreign entomological scientists, our own scientists will be able to do much more work than they themselves were able to do before, and with no increase in the cost to our regular dollar appropriations.

### HUMAN NUTRITION RESEARCH ABROAD

Mr. WHITTEN. Thank you, Dr. Byerly. We've learned through the years to appreciate segments of the Department's research activities. I know this new year book on foods has been in such demand, that just about all copies are gone and they say it is selling far beyond any books in recent years, but it does look like back through the years any time you get into a new field, everybody wants to get cut in on it. I guess that's natural too. Turning to the description here of the projects in human nutrition, experts research, and I quote:

**To obtain better understanding of the normal biological variation in human nutritional requirements involving coordinated investigations into the biochemical response to a given reference diet by human subjects of different environmental and genetic backgrounds.**

I won't read the rest, but then turning to number two, we find comparative studies of human nutrition conducted in different parts of the world under widely different conditions of food habits and food supply which would provide scientific information on food requirements which is unattainable under U.S. conditions.

Now, I am no scientist and I am not too expert in reading scientific language, or even a description where you try to break it down so I can understand it. But if I do understand we are doing these studies about the effects on people in other countries, of different races, because we have no chance to do it over here. So if we don't have similar conditions, what have we got when we have found out what is working over there?

Dr. HILBERT. An example of the projects being considered for investigation is in Egypt where there is a segment of the population that is some distance away from civilization and where they have been eating native foods over hundreds of years. Little information is available on the relationship of the food intake and whether it is a good diet. This kind of information would be useful even in the United States. Also in Egypt, there is another segment of population, which has a very high salt diet, and that high salt diet is continual. No information is available as to what is the effect of this high salt diet on their physiology. And there is still another group, for instance, that has a diet with a very high iron content and it would be desirable to find out what is its effect on people. It is that kind of a nutritional information which would be helpful to us.

Mr. WHITTEN. Doctor, I still can't see that it matters to us whether they have a terriffically high salt diet, since nobody has such a diet over here anyway. Although we've got some Indians over here, we know their background or probably found that they inherited it anyway—I'm just trying to find out its value and I am sure it's not from a curiosity standpoint, or just to know what goes on in the rest of the world. We are going to have relatively few of those people in these areas to come to the United States. Those that do will bring with them their background.

Now, where they have eaten that way for many generations, I would just wonder if you folks are qualified to see what effect it has had over generations, because we can't know how much influence comes from their heritage, how much they have inherited and all that.

I just doubt that you have said so much about why it is of value to us.

Dr. SHAW. Mr. Chairman, may I make a comment?

Mr. WHITTEN. Yes, sir. I can stand some more information as you can well tell.

Dr. SHAW. In a number of countries where the main problems are diseases and other nutritional difficulties, much material is available for study on the effect of nutrition on health which we do not have in this country.

If we can feed a given group of subjects the same diet in this country and in the other countries where these different responses to their nutritional setup takes place, then we can identify whether it is a genetic character that causes them to respond differently to the foods than we do, and if so, we cannot do much of anything about it. On the other hand, if we find that there is something in the food that causes them to respond differently than to their own foods, it would be of benefit to us in guiding the nutritional developments here. That is one part of the question.

The second part of the question is in terms of our marketing our products. The more we learn about their diet and their nutrition, the better we will be able to tailor our exports to their needs.

Mr. WHITTEN. Well, that might be. You know, a few years ago we had all this surplus butter and couldn't sell it because foreign countries didn't want salt in their butter and we were determined to put salt in our butter as I recall the story. But now, all you have to do is just write them a letter and ask them what they like and then set out to provide it which would strike me as being a much simpler way to increase the markets over there.

Dr. SHAW. That would involve the case of likes and dislikes, but if there is a nutritional reason for what they are doing, and if we have nutritional evidence that suggests to them that with a change in diet they would be better off, we've got a better sales argument.

Mr. WHITTEN. In other words, we are going to go over there and take them off of the foods that they have been using before and have an experiment with that and see what the reaction is. Is that what we are doing?

Dr. SHAW. We've got the information and the responses of our people to these diets, and we want to take those exact same diets to other areas, perhaps Finland for one, and India for another, and see if we get the same response of those people to the diet.

Mr. WHITTEN. Off the record.

(Discussion off the record.)

Mr. SANTANGELO. In line with what you're saying in trying to teach the people, having to like what we like in the United States, I know that in the dairy company we tried to teach them to like ice cream and one of the most interesting things that we learned about what they liked about ice cream, they started putting pink syrup or something in their milk because they didn't like it brown, like coffee or chocolate ice cream, nor did they like it white. They just liked it pink. So they taught us something about what they liked by putting in this pink substance, this sweet substance.

However, I don't know whether we can teach the people over there to eat ice cream or drink milk. I think we are trying and maybe the market research is doing a tremendous job and they are sending plenty of milk out free to the schoolchildren.

Mr. WHITTEN. The marketing I thoroughly agree with, but I'd like to call attention that my line of questioning here is along human nutrition research. In other words, to study these peoples and study the diets of what they have always had and to determine why the diet may cause them to be like they are, which I think is a little different from the marketing research, opening up markets and things of that sort.

Dr. SHAW. This is not under the section of marketing development.

Mr. WHITTEN. I know it isn't, but in this particular section it's hard for me to trace the work done here into anything I could see that would have any U.S. value other than to satisfy our curiosity.

Dr. BYERLY. Mr. Chairman, may I comment? Among the peoples of the world there are differences in diet apparently associated with factors very important to us. One is longevity; one is the heart. Now, with those people who have low calorie diets apparently they have a low rate of heart disease. Perhaps they don't live long enough on the

average to have much heart disease, and maybe there also is an association there with infections.

This is a matter of great concern to us, to see if we can learn from primitive people, from people on low calorie diets, to find out whether there is an effect of nutrition with respect to the recurrence of constitutional disease. This is of importance to us and there are many other things that may prove important in this area.

Mr. WHITTEN. Well, Doctor, I think you may have hit on something there that registers with me.

Again we deal in foreign currencies that would not be usable for the benefit of the United States. I am frank to say, speaking as chairman of the subcommittee and for whatever it is worth, and in an effort to bring some order out of chaos, the way we have been handling foreign currencies—I don't mean the Department, but overall—has been kind of haphazard back through the years. When we were discussing this accountability of the Appropriations Committee, certainly I couldn't see where the committee had been too tight in the allocations of these funds where you could see possible benefits to the United States.

So my line of questioning is just to let the record show whatever is involved. I think it would be a mistake to deal in this field to this degree showing in advance the expected results that we would in dealing with——

Dr. BYERLY. May I say with emphasis that these proposals—whether they are initiated in other countries or whether they are initiated by us—pass the same scrutiny and even additional scrutiny as compared to our own proposals within our regular dollar budget.

### GENERATION OF FOREIGN CURRENCY UNDER PUBLIC LAW 480

Mr. SANTANGELO. Mr. Chairman, could we have in the record where they are proposing to initiate or have initiated certain programs, the total amount of foreign currency that has been generated by Public Law 480 in those countries?

Mr. WHITTEN. I think we might well have that in the record. I think it would be well to show what part of that is available for how long for the United States. Now most of these agreements, as I recall, the basic law provides about 80 percent generally is to be used by the foreign country so it is just about 10 percent that's affected by the appropriating process in the United States.

So if you do that, I'd like for you to make a division between the total amount and that part which is available for United States determination in its use.

(The information requested follows:)

*Availability of foreign currencies of countries in which market development research and agricultural and forestry research programs are proposed for fiscal year 1961*

[In thousands of dollars]

| Country | Total amount in agreements (market value including ocean transportation) | Amounts available for common defense (sec. 104(c)), grants for economic development and loans to private enterprise (sec. 104(e)) and loans to foreign governments (sec. 104(g)) | Payment of U.S. obligations (sec. 104(f)) | Balance available for other U.S. uses | Amount requested in in ARS estimates, fiscal year 1961 |
|---|---|---|---|---|---|
| Brazil | 179,920 | 151,222 | 21,850 | 6,848 | 1,086 |
| Burma | 40,700 | 32,550 | 4,842 | 3,308 | 255 |
| Ceylon | 21,000 | 16,380 | 1,860 | 2,760 | 350 |
| Colombia | 70,890 | 52,530 | 9,848 | 8,512 | 1,300 |
| Egypt | 125,600 | 80,625 | 16,541 | 28,434 | 202 |
| Greece | 66,000 | 47,770 | 14,480 | 3,750 | 162 |
| India | 926,933 | 778,332 | 91,570 | 57,031 | 2,210 |
| Indonesia | 148,300 | 114,595 | 22,030 | 11,675 | 314 |
| Israel | 130,954 | 111,464 | 13,126 | 6,364 | 1,220 |
| Pakistan | 271,950 | 212,146 | 26,824 | 32,980 | 930 |
| Peru | 25,280 | 18,197 | 3,499 | 3,584 | 200 |
| Poland | 193,800 | ---------- | 58,980 | 134,820 | 2,051 |
| Spain | 392,130 | 206,640 | 146,443 | 39,047 | 1,432 |
| Turkey | 232,265 | 134,061 | 75,983 | 22,221 | 100 |
| Uruguay | 37,200 | 27,950 | 3,480 | 5,770 | 2,270 |
| Yugoslavia | 389,730 | 310,841 | 39,048 | 39,841 | 1,049 |
| Other countries | 906,831 | 595,518 | 102,967 | 208,346 | ---------- |
| Total | 4,159,483 | 2,890,821 | 653,371 | 615,291 | 15,131 |

NOTE.—Amounts are based on Public Law 480 agreements signed July 1, 1954, through December 31, 1959. They are in dollar equivalents at the deposit rate of exchange and are subject to adjustment when actual commodity purchases and currency allocations have been made.

Mr. WHITTEN. Doctor, may I thank you and your associates here for your presentation of this overall matter. We realize that it is new to us and I know to some degree it is new to you. We do feel that Public Law 480 has been of questionable value and that because of it we have postponed far too long necessary corrections in our farm program here at home.

I think for a period of time to a great degree, it has kept us from pushing our sales through normal channels for dollars to the degree that we should. There are certain other values to 480 perhaps in some areas where we had a desire to improve standards and help these countries, but from the U.S. standpoint I think that the funds that we are dealing with here offer perhaps the best chance that we have to get substantial value from these programs. I appreciate the way you have presented it to us and I trust as we go along, not finding fault at all here now, but we will come to an understanding a little better and get to where we can deal with it more fully than we can at this time.

I thank you.

COUNTRIES IN WHICH FOREIGN CURRENCIES AVAILABLE

Mr. NATCHER. Doctor, as I understand all of the research projects will be conducted in countries where we have foreign currencies.

Dr. HILBERT. In this budget we have provided some funds in the form of convertible currency which would enable us to finance activities in countries in which we do not have the currency of the country at the present time. In other words, if we negotiate a Public Law 480 agreement with a country such as Peru, we may stipulate that a portion of the Peruvian pesos be convertible to another currency, say that of Germany or Holland.

Mr. NATCHER. Now, Dr. Hilbert, what method would be used in selecting the countries in which you will have research projects underway?

Dr. HILBERT. Well, that's determined by the availability of foreign currency. In other words, we have not had programs underway in countries like West Germany or some of the other central Europe "hard currency" countries where they would do very fine research. The reason is there are no foreign currencies available to us for those countries.

Mr. NATCHER. You are acquainted with the Common Market countries. I believe the Common Market countries are Germany, Holland, Luxembourg, France, Italy, and Belgium.

Dr. HILBERT. Correct.

Mr. NATCHER. Now, Mr. Chairman, with your permission, I would like to go off the record.

(Discussion off the record.)

COOPERATION WITH AGRICULTURAL ATTACHÉS

Mr. HORAN. What are you doing with the attachés in this program?

Dr. HILBERT. We cooperate closely with them, actually our Rome office is a part of that of the agricultural attaché stationed in our Rome Embassy. All of our communications in a country pass through the agricultural attaché of the country before being sent to the foreign scientist. So do all of our agreements.

We like it that way. We like to have the agricultural attaché review the research projects which we are proposing to initiate in the country.

Mr. HORAN. Then to all intents and purposes, the attaché is the supervisor of these experiments?

Dr. HILBERT. Well, I wouldn't say he is the supervisor. Our Rome office is generally supervising the research projects we have in Europe and the Near East. I would say if there is any actual subject matter supervisor, it's the research expert in the Research Division in the Department.

Dr. BYERLY. Mr. Chairman, may I comment? The agricultural attaché is our adviser with respect to persons and conditions within that country, particularly as to the building of markets within the country.

In Poland, for example, there is presently no agricultural attaché. So we are providing a contact in the Embassy who will have a special advisory capacity relative to our projects in that country; is this not true, Dr. Hilbert?

Dr. HILBERT. Yes.
Mr. NATCHER. Mr. Michel.

FOREIGN RESEARCH IN POLAND AND YUGOSLAVIA

Mr. MICHEL. Doctor, you have just touched on a country of which I was about to ask and that is, do you have any negotiations, any agreements negotiated with Poland and Yugoslavia?

Dr. HILBERT. Yes, we have negotiated 23 agreements in Poland and one in Yugoslavia.

Mr. MICHEL. Would this be an extra large number for a country like Poland?

Dr. HILBERT. No. The research capacity of Poland is very high, surprisingly high.

Mr. MICHEL. On the strength of the number of intellectuals and scientists?

Dr. HILBERT. Yes, on the number of scientists they have.

Mr. MICHEL. Do you have a number of agreements in Israel?

Dr. HILBERT. Yes, we do. There are in the neighborhood of 15 research agreements in Israel.

Mr. MICHEL. And here again, in view of it being such a small country comparatively areawise, would it be due to the high percentage of intellectuals in the country, would you say?

Dr. HILBERT. Yes, that's the reason for it and many of them are still coming in from other countries as refugees.

Mr. MICHEL. Do you in these agreements that have been entered into in the country where—Poland, for example, since there are a greater number than Yugoslavia, do you have any concern that we are in effect giving the Communist control of the country much more benefit or that the government itself will derive much more benefit than we ourselves?

Dr. HILBERT. No, I think we will get just as much or more benefit from it than will the Poles. The Poles are enthusiastic about this program because it provides a tie with Western scientists.

May I speak off the record?

(Discussion off the record.)

Mr. MICHEL. Do the projects in Poland cover a wide spectrum or are they more narrow in scope?

Dr. HILBERT. They cover a very wide spectrum.

Mr. MICHEL. That's good enough. I just wanted to know whether it was specialized in a country like Poland or whether it would run the gamut.

Dr. HILBERT. No. There would be perhaps five—well, I think we have negotiated roughly four or five projects in the field of forestry research, a couple in the field of marketing research, a couple in the field of utilization research and I would say about 15 in the field of farm research—so it is pretty widely distributed.

FOREIGN TRAVEL

Mr. MICHEL. In response to a question by the chairman, on whether on this matter of how much supervision there would be and how much traveling would be involved between people in your own department here and the foreign Embassies and the foreign points where the re-

search is actually taking place, how much of an increase in travel allowances are in this budget for just that kind of travel?

Dr. HILBERT. Well, that's included in our administrative costs which are reserved and set aside at the time the grant is executed. The administrative costs would cover the period of the life of the project.

Mr. MICHEL. But the matter of travel would have to be borne in dollars.

Dr. HILBERT. No. It's all in foreign currency.

Mr. MICHEL. The entire travel?

Dr. HILBERT. Yes.

Dr. SHAW. We have to pay the salary of the man from this country who goes over there, but we buy his ticket and pay his per diem under the foreign currency.

Mr. MICHEL. That's true of all the countries?

Dr. SHAW. That's correct.

Mr. MICHEL. That would be—off the record.

(Discussion off the record.)

Mr. WHITTEN. Any further questions?

## CONSTRUCTION OF FACILITIES

*Program and financing*

| | 1959 actual | 1960 estimate | 1961 estimate |
|---|---|---|---|
| Program by activities: | | | |
| 1. Construction of facilities for entomology research (total program costs) | | | $60,000 |
| 2. Relation of costs to obligations: Obligations incurred for costs of other years (unpaid undelivered orders), net | | | 840,000 |
| Total obligations | | | 900,000 |
| Financing: Appropriation (new obligational authority) | | | 900,000 |

*Object classification*

| | 1959 actual | 1960 estimate | 1961 estimate |
|---|---|---|---|
| 07 Other contractual services | | | $60,000 |
| 10 Lands and structures | | | 840,000 |
| Total obligations | | | 900,000 |

Mr. WHITTEN. Last year the committee developed a question of the need for this laboratory to be moved out of its present quarters. It was also the desire of certain local interests that it be moved and according to our department, there were certain advantages to the Government if it were moved.

### JUSTIFICATION OF THE ESTIMATE

Could we have the situation described for the record?

Dr. BYERLY. It is described on pages 128, 129 and 130.

Mr. WHITTEN. We might ask that all three of those pages be inserted in the record.

(The pages referred to follow:)

*Construction of facilities*

| | |
|---|---|
| Appropriation act, 1960 and base for 1961 | — — |
| Budget estimate, 1961 | $900,000 |
| Increase (to replace present facilities used for entomology research at Orlando, Fla.) | +900,000 |

*Project statement*

| Project | 1959 | 1960 estimate | 1961 estimate |
|---|---|---|---|
| Construction of facilities for entomology research | | | [1] $900,000 |

[1] Represents obligations. Applied costs are $60,000. The difference of $840,000 is, primarily, the excess of construction contracts estimated to be made over work estimated to be performed in 1961.

INCREASE

(1) *Increase of $900,000 to replace present entomology research facilities at Orlando, Fla.*

*Relocation of laboratory.*—The present facilities for entomology research at Orlando, Fla., are located on about 19 acres of land transferred to the Department of Agriculture under authority of the 1960 Department of Agriculture Appropriation Act. Because of its high commercial value and the intensive use of adjacent land for business purposes the House Committee on Appropriations requested in House Report 365, page 12, that the Department select possible alternative locations for the laboratory and submit its recommendations to the committee.

A number of communities in Florida have urged the relocation of the laboratory in their own community, and offers of land in or near such communities have been tendered as sites for the laboratory. Officials of the Department have considered these various alternative locations and have inspected alternative sites. As a result of this review, it is recommended that the laboratory be located at Gainesville, Fla. The reasons for selecting a site on the campus of the University of Florida at Gainesville, instead of Orlando which is considered second in order of priority, are the availability at the University of:

(*a*) Excellent library facilities for reference and research.

(*b*) Entomologists and other scientists of the university, experiment station, and extension departments for consultation and cooperation.

(*c*) Special courses of study to prepare junior members of the staff for more advanced work.

(*d*) Undergraduate and graduate entomology students for employment and recruitment for vacancies in the research work.

These advantages are considered to outweigh the factors favoring Orlando, namely (*a*) more favorable climate for year-round research, (*b*) proximity to cooperators with whom research work has been conducted for many years, (*c*) better transportation facilities, and (*d*) avoidance of moving employees to another location and of changing the location of a laboratory which has attained world renown.

At Gainesville, the University of Florida is willing to donate a site of approximately 10 acres on the campus near the poultry unit. Access to the site is excellent.

At Orlando, an offer has been made to donate a 20-acre site approximately 3 miles from the city.

*Need for facilities.*—It is essential that the research of the Orlando laboratory be continued. Intensive research on the development of insecticides and repellents for the control of insects, mites, and ticks, which transmit diseases to man and animals or which are household pests is conducted there. Mosquitoes, lice, fleas, flies, ticks, and mites are vectors of some of the most dread diseases of mankind. The objective of the research is the development of improved methods for controlling these insects thereby effecting better control of malaria, filariasis, encephalitis, rat-borne plagues transmitted by fleas, Rocky Mountain spotted fever, typhus and scrub typhus, enteric fever, and other diseases. America's armed services and civilian population place heavy reliance upon

the services provided by this laboratory, and its many accomplishments have given the laboratory world-wide status as an outstanding research institution.

Relocation of the laboratory would necessitate new buildings since the present frame structures which house the laboratory are in no condition to be moved. The new buildings must include adequate space (1) for research, including rearing and maintenance of test colonies of several species of mosquitoes, body lice, ticks, mites, flies, fleas, and roaches; (2) for investigations of chemicals for the control of the various pests and disease carriers; and (3) for basic research on the various modes of action of insecticides, and on the use of radioactive materials. Special facilities will also be required for biological control investigations, such as determination of the extent to which the sterilized-male technique, effectively used against the screwworm fly in the Southeast, can be employed against the Anopheles mosquito and certain other insects.

Modern buildings and laboratory equipment also would greatly facilitate all phases of research now conducted at the Orlando laboratory and would enable an expansion of certain lines of basic research which cannot be conducted in the present facilities. Location of the new facilities in a less crowded area would afford better working conditions and less interruptions than does the current location.

After the new facilities are completed, the present land and buildings would be available for disposal. It is expected that the proceeds from the sale of this property may amount to as much as $400,000 which will be deposited in the Treasury, thus offsetting in part the cost of the proposed new facility.

*Cost.*—The cost of providing the new facilities is estimated as follows:

| | |
|---|---|
| Main laboratory, including test rooms, offices, service areas, sewage, utilities, drives, etc., 23,350 square feet | $761,000 |
| Small animal building | 18,000 |
| Shops, maintenance, and general storage buildings | 45,000 |
| Garage | 10,000 |
| Radioactive storage building | 6,000 |
| Architect, engineering services, and supervision of construction | 60,000 |
| Total | 900,000 |

SALE OF PROPERTY AT ORLANDO, FLA.

Mr. WHITTEN. What is the outlook so far as selling this property where they are presently situated, Dr. Byerly?

Dr. BYERLY. We have been informed there is a ready market for it.

Mr. WHITTEN. Certain people were told last year that it was worth $20,000 per acre at least. Have we got any further information other than the statements made last year?

Mr. GRANT. No, Mr. Chairman. We have a letter from one individual indicating an interest in paying at least $20,000 an acre for the 19 acres.

Mr. WHITTEN. The other thing that I noticed here, we have several moves authorized by the Congress that are not exactly in this field, but it was my observation that everytime you make a move, you end up by getting about twice as much as you ever have because in the move somebody gets the idea that they'll get what they always wanted.

Now, I think about $450,000 has been about the average appropriation by the Congress for laboratories and it is my personal thought that if the committee should go along, it might want to look to the guide rule that has been established in these other hearings.

Dr. BYERLY. Mr. Chairman, may I state my opinion? That $450,000 would not provide sufficient space for the activities as presently conducted by the Division at Orlando on research on insects affecting man and animals.

Mr. WHITTEN. Now, do you mean that this land and the buildings would be worth only about $380,000? But now, I would say that even though we were led to believe that this was to have been desirable and they have tremendous prices for it, now we find that we have to pay probably three times that much to move it so we had better give up the idea of moving it.

Dr. BYERLY. These estimates have been rather carefully developed and they are our best estimates of what it would cost to replace the present facilities for the research on a space basis.

Now obviously, the new facilities would be better facilities than the ones presently existing but they would not provide additional space as I understand it.

Mr. WHITTEN. Well, this committee has had any number of Members of Congress discuss with us their personal desires to have this laboratory in various districts in Florida which is a natural thing. The Congressman whose district is in Orlando and he certainly would like to see it in that immediate area. The Congressman who represents Gainesville has talked to me in the interest of moving it there and I understand several others in the State would like to have it in their areas, but I would say at this stage, that unless there can be some means of adjusting this downward or some increase in the price that's going to be paid for the property you have, I would question whether the majority of the subcommittee would go along with it.

I'm not asking if you take the position today, but I would like for this matter to be explored more thoroughly prior to the final markup of this bill.

Dr. BYERLY. Mr. Chairman, if I understand your wish, would you like to have us state the number of persons presently at Orlando and the present space occupancy of those persons on a comparative basis?

Mr. WHITTEN. I would, because up here we are doing all right like it is, and we want to cooperate but if we are going to be out $3 for each one, then perhaps we had better take a new look.

Dr. BYERLY. Well then, we'll supply such a breakdown.

(The information follows:)

PERSONNEL AT ENTOMOLOGY RESEARCH LABORATORY, ORLANDO, FLA.

For fiscal year 1960, the total staff of the laboratory is 50, including 2 cooperating State employees. The proposed increase for fiscal year 1961 for strengthening research on pesticide residue problems includes provision for some expansion of the work at Orlando. It is estimated that an additional 4 employees would be added at Orlando under this increase, bringing the total staff to approximately 54. This staff would be moved into the proposed new laboratory at Gainesville.

LABORATORY SPACE

The following tabulation compares the size of the present facilities at Orlando with those proposed in the budget for the relocated laboratory.

[Square feet]

| | Present space [1] | Proposed laboratory |
|---|---|---|
| Laboratories | 3,146 | 2,196 |
| Offices and related space | 8,984 | 8,220 |
| Rooms for rearing insect colonies and for conducting tests with animals | [2] 15,007 | 9,416 |
| Service space | 2,343 | 3,518 |
| Total | 29,480 | 23,350 |

[1] Exclusive of small animal building, shops, garage, and small radioactive storage facility.
[2] Approximately ½ of this space is not required.

The present facilities at Orlando are housed in several one-story hospital-barracks type frame buildings constructed by the Air Force during World War II. Because of their temporary nature, new facilities will soon be needed as replacement—even at the same location. This would cost about the same as the present proposal, or perhaps more if construction costs continue to increase.

The proposed facilities, being especially designed, planned, and equipped for the work, would be much more useful than those now available and would be more efficient in space utilization.

ESTIMATED COST

Since the research is concerned with insects affecting man and animals, all of the laboratory facilities are buildings and there are no greenhouse facilities as with entomology research concerned with plants. Therefore, the facility costs for the same sized staff are higher than if the research were concerned with plants.

Mr. NATCHER. Mr. Santangelo, any questions? Mr. Horan?

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FEBRUARY 18, 1960.

## STATE EXPERIMENT STATIONS

*Program and financing*

| | 1959 actual | 1960 estimate | 1961 estimate |
|---|---|---|---|
| Program by activities: | | | |
| 1. Payments to States and Puerto Rico: | | | |
| (a) Payments to agricultural experiment stations | $30,804,158 | $30,845,708 | $31,815,708 |
| (b) Federal administration | 660,986 | 708,000 | 738,000 |
| 2. Penalty mail | 250,000 | 250,000 | 250,000 |
| Total program costs [1] | 31,715,144 | 31,803,708 | 32,803,708 |
| 3. Relation of costs to obligations: Obligations incurred for costs of other years, net | 29,351 | ---------- | ---------- |
| Total program (obligations) | 31,744,495 | 31,803,708 | 32,803,708 |
| Financing: Unobligated balance no longer available | 59,213 | ---------- | ---------- |
| Appropriation (new obligational authority) | 31,803,708 | 31,803,708 | 32,803,708 |

[1] Includes capital outlay as follows: June 30, 1959, $3,984; 1960, $9,000; 1961, $4,900.

*Object classification*

| | 1959 actual | 1960 estimate | 1961 estimate |
|---|---|---|---|
| Total number of permanent positions | 75 | 73 | 76 |
| Full-time equivalent of all other positions | 1 | 1 | 1 |
| Average number of all employees | 67 | 65 | 68 |
| Number of employees at end of year | 71 | 72 | 75 |
| Average GS grade and salary | 7.5 $6,004 | 7.6 $6,045 | 7.6 $6,083 |
| 01 Personal services: | | | |
| Permanent positions | $490,040 | $500,700 | $524,300 |
| Positions other than permanent | 4,466 | 5,600 | 5,600 |
| Other personal services | 2,359 | 4,700 | 2,500 |
| Total personal services | 496,865 | 511,000 | 532,400 |
| 02 Travel | 73,148 | 75,000 | 77,000 |
| 03 Transportation of things | | 100 | 300 |
| 04 Communication services | 255,295 | 256,000 | 256,200 |
| 05 Rents and utility services | 10 | | |
| 06 Printing and reproduction | 5,823 | 8,000 | 8,200 |
| 07 Other contractual services | 3,177 | 3,000 | 7,000 |
| Services performed by other agencies | 49,820 | 57,000 | 60,700 |
| 08 Supplies and materials | 3,455 | 6,700 | 7,600 |
| 09 Equipment | 4,395 | 9,000 | 4,900 |
| 11 Grants, subsidies, and contributions | 31,222 | 32,000 | 33,500 |
| Payments to agricultural experiment stations | 30,821,089 | 30,845,708 | 31,815,708 |
| 13 Refunds, awards, and indemnities | 6 | | |
| 15 Taxes and assessments | 190 | 200 | 200 |
| Total obligations | 31,744,495 | 31,803,708 | 32,803,708 |

## Justification of the Estimate

Mr. Natcher. Next we take up State experiment stations. At this point, we will insert page 131 and tables A, B and C.

(The information requested follows:)

*State experiment stations*

| | Payments to States and Puerto Rico | Penalty mail | Total |
|---|---|---|---|
| Appropriation Act, 1960 and base for 1961 | $31,553,708 | $250,000 | $31,803,708 |
| Budget estimate, 1961 | 32,553,708 | 250,000 | 32,803,708 |
| Increase (to strengthen research at the agricultural experiment stations) | +1,000,000 | | +1,000,000 |

*Project statement*

| Project | 1959 | 1960 (estimated) | Increase | | 1961 (estimated) |
|---|---|---|---|---|---|
| | | | Health benefit costs (Public Law 86-382) | Other | |
| 1. Payments to States and Puerto Rico: | | | | | |
| (a) Hatch Act, as amended by the act of Aug. 11, 1955 | $30,994,495 | $31,053,708 | ---------- | +$1,000,000 | $32,053,708 |
| (b) Agricultural Marketing Act (title II), sec. 204(b) (Aug. 14, 1946) | 500,000 | 500,000 | ---------- | ---------- | 500,000 |
| Total, payments to States and Puerto Rico | 31,494,495 | 31,553,708 | ---------- | +1,000,000 | 32,553,708 |
| 2. Penalty mail | 250,000 | 250,000 | ---------- | ---------- | 250,000 |
| Total obligations or estimate [1] | 31,744,495 | 31,803,708 | ---------- | +1,000,000 | 32,803,708 |
| Unobligated balance | 59,213 | ---------- | ---------- | ---------- | ---------- |
| Total employee health benefit costs (Public Law 86-382) | [----------] | [----------] | [ $4,356] | [ 214] | [ 4,570] |
| Total appropriation or estimate | 31,803,708 | 31,803,708 | ---------- | +1,000,000 | 32,803,708 |

[1] Represents obligations. Applied costs for 1959 are $31,715,144. The difference of $29,351 reflects primarily the effect of refunds from payments to States in 1958.

TABLE A.—*Distribution of Federal payments to States and non-Federal funds for research at State agricultural experiment stations, fiscal year 1959*

| State | Hatch Act as amended | Sec. 204(b) Agricultural Marketing Act | Total Federal funds | Non-Federal funds | Grand total |
|---|---|---|---|---|---|
| Payments to States and Puerto Rico: | | | | | |
| Alabama | $701,993 | ---------- | $701,993 | $1,949,616 | $2,651,609 |
| Alaska | 198,093 | $14,050 | 212,143 | 265,021 | 477,164 |
| Arizona | 255,682 | 5,700 | 261,382 | 1,474,165 | 1,735,547 |
| Arkansas | 590,803 | 2,500 | 593,303 | 1,800,853 | 2,394,156 |
| California | 664,897 | 18,500 | 683,397 | [1] 11,722,920 | [1] 12,406,317 |
| Colorado | 312,306 | ---------- | 312,306 | 1,134,511 | 1,446,817 |
| Connecticut | 270,807 | 5,000 | 275,807 | 1,436,926 | 1,712,733 |
| Delaware | 210,306 | 4,000 | 214,306 | 511,839 | 726,145 |
| Florida | 395,290 | 19,714 | 415,004 | 4,843,708 | 5,258,712 |
| Georgia | 730,367 | 14,700 | 745,067 | 2,993,576 | 3,738,643 |
| Hawaii | 237,834 | ---------- | 237,834 | 836,300 | 1,074,134 |
| Idaho | 278,286 | 5,000 | 283,286 | 881,815 | 1,165,101 |
| Illinois | 690,170 | 6,150 | 696,320 | 2,915,065 | 3,611,385 |
| Indiana | 602,963 | 33,500 | 636,463 | 3,461,249 | 4,097,712 |
| Iowa | 605,310 | 25,250 | 630,560 | 2,892,778 | 3,523,338 |
| Kansas | 447,413 | 27,160 | 474,573 | 2,310,736 | 2,785,309 |
| Kentucky | 725,228 | 18,000 | 743,228 | 1,423,678 | 2,166,906 |
| Louisiana | 519,667 | 3,500 | 523,167 | 2,889,362 | 3,412,529 |
| Maine | 286,518 | 23,000 | 309,518 | 446,765 | 756,283 |
| Maryland | 334,548 | 5,500 | 340,048 | 1,128,807 | 1,468,855 |
| Massachusetts | 322,760 | ---------- | 322,760 | 662,430 | 985,190 |
| Michigan | 657,836 | 95,926 | 753,762 | 2,881,182 | 3,634,944 |
| Minnesota | 586,625 | ---------- | 586,625 | 3,405,035 | 3,991,660 |
| Mississippi | 710,856 | 9,000 | 719,856 | 1,997,456 | 2,717,312 |
| Missouri | 646,350 | 42,000 | 688,350 | 1,821,858 | 2,510,208 |
| Montana | 271,263 | ---------- | 271,263 | 1,507,274 | 1,778,537 |
| Nebraska | 399,571 | 13,500 | 413,071 | 2,005,071 | 2,418,142 |
| Nevada | 196,947 | ---------- | 196,947 | 232,091 | 429,038 |
| New Hampshire | 232,040 | ---------- | 232,040 | 188,286 | 420,326 |
| New Jersey | 316,631 | 10,000 | 326,631 | 1,959,338 | 2,285,969 |
| New Mexico | 270,380 | ---------- | 270,380 | 531,430 | 801,810 |
| New York | 674,338 | ---------- | 674,338 | 5,800,422 | 6,474,760 |
| North Carolina | 959,622 | ---------- | 959,622 | 2,354,740 | 3,314,362 |
| North Dakota | 323,018 | ---------- | 323,018 | 1,289,694 | 1,612,712 |
| Ohio | 779,600 | 11,500 | 791,100 | 2,686,462 | 3,477,562 |
| Oklahoma | 505,668 | ---------- | 505,668 | 1,812,161 | 2,317,829 |
| Oregon | 352,872 | 26,000 | 378,872 | 2,644,411 | 3,023,283 |
| Pennsylvania | 857,357 | 5,000 | 862,357 | 1,995,303 | 2,857,660 |
| Puerto Rico | 654,165 | ---------- | 654,165 | 1,545,301 | 2,199,466 |
| Rhode Island | 205,537 | ---------- | 205,537 | 266,839 | 472,376 |

[1] Estimated.

TABLE A.—*Distribution of Federal payments to States and non-Federal funds for research at State agricultural experiment stations, fiscal year 1959*—Continued

| State | Hatch Act as amended | Sec. 204(b) Agricultural Marketing Act | Total Federal funds | Non-Federal funds | Grand total |
|---|---|---|---|---|---|
| Payments to States and Puerto Rico—Continued | | | | | |
| South Carolina | $574,079 | | $574,079 | $1,073,660 | $1,647,739 |
| South Dakota | 320,606 | $6,500 | 327,106 | 1,132,197 | 1,459,303 |
| Tennessee | 732,709 | 2,500 | 735,209 | 1,080,337 | 1,815,546 |
| Texas | 975,292 | 13,000 | 988,292 | 4,574,972 | 5,563,264 |
| Utah | 243,946 | | 243,946 | 905,375 | 1,149,321 |
| Vermont | 242,360 | | 242,360 | 219,961 | 462,321 |
| Virginia | 648,598 | | 648,598 | 1,904,778 | 2,553,376 |
| Washington | 392,890 | 17,600 | 410,490 | 3,230,342 | 3,640,832 |
| West Virginia | 495,888 | 1,250 | 497,138 | 570,053 | 1,067,191 |
| Wisconsin | 598,286 | | 598,286 | 3,936,975 | 4,535,261 |
| Wyoming | 220,516 | 15,000 | 235,516 | 661,036 | 896,552 |
| Total | 24,427,087 | 500,000 | 24,927,087 | 104,196,160 | 129,123,247 |
| Regional research fund | 5,899,875 | | 5,899,875 | | 5,899,875 |
| Administration | 667,533 | | 667,533 | | 667,533 |
| Unobligated balance | 59,213 | | 59,213 | | 59,213 |
| Subtotal | 31,053,708 | 500,000 | 31,553,708 | 104,196,160 | 135,749,868 |
| Penalty Mail: Reimbursement to Post Office Department for penalty mail costs of State experiment station directors | 250,000 | | 250,000 | | 250,000 |
| Grand total | 31,303,708 | 500,000 | 31,803,708 | 104,196,160 | 135,999,868 |

TABLE B.—*Appropriations for State experiment stations, fiscal years 1959–61*

| State | Fiscal year 1959 | Fiscal year 1960 | Fiscal year 1961 (estimated) |
|---|---|---|---|
| Payments to States and Puerto Rico: | | | |
| Alabama | $701,993 | $701,993 | $724,182 |
| Alaska | 198,093 | 198,093 | 202,473 |
| Arizona | 255,682 | 255,682 | 261,993 |
| Arkansas | 590,803 | 590,803 | 609,221 |
| California | 664,897 | 664,897 | 684,902 |
| Colorado | 312,306 | 312,306 | 320,647 |
| Connecticut | 270,807 | 271,674 | 278,418 |
| Delaware | 210,306 | 210,306 | 215,151 |
| Florida | 395,290 | 395,364 | 406,263 |
| Georgia | 730,367 | 730,367 | 753,331 |
| Hawaii | 237,834 | 237,835 | 243,656 |
| Idaho | 278,286 | 278,286 | 285,549 |
| Illinois | 690,170 | 690,170 | 711,385 |
| Indiana | 602,963 | 602,963 | 621,345 |
| Iowa | 605,310 | 605,310 | 623,999 |
| Kansas | 447,413 | 447,413 | 460,309 |
| Kentucky | 725,228 | 725,228 | 748,187 |
| Louisiana | 519,667 | 519,667 | 535,296 |
| Maine | 286,518 | 286,518 | 293,907 |
| Maryland | 334,548 | 345,414 | 354,690 |
| Massachusetts | 322,760 | 322,760 | 331,068 |
| Michigan | 657,836 | 657,836 | 677,923 |
| Minnesota | 586,625 | 586,625 | 604,781 |
| Mississippi | 710,856 | 710,856 | 733,772 |
| Missouri | 646,350 | 646,350 | 666,582 |
| Montana | 271,263 | 271,263 | 278,181 |
| Nebraska | 399,571 | 399,571 | 410,936 |
| Nevada | 196,947 | 196,947 | 201,333 |
| New Hampshire | 232,040 | 232,040 | 237,577 |
| New Jersey | 316,631 | 316,631 | 324,854 |
| New Mexico | 270,380 | 270,389 | 277,302 |
| New York | 674,338 | 674,413 | 694,609 |
| North Carolina | 959,622 | 959,622 | 990,741 |
| North Dakota | 323,018 | 323,018 | 331,761 |
| Ohio | 779,600 | 779,600 | 803,783 |
| Oklahoma | 505,668 | 505,668 | 520,575 |
| Oregon | 352,872 | 352,872 | 362,518 |
| Pennsylvania | 857,357 | 857,357 | 883,290 |
| Puerto Rico | 654,165 | 660,885 | 682,276 |
| Rhode Island | 205,537 | 205,537 | 210,168 |

TABLE B.—*Appropriations for State experiment stations, fiscal years 1959–61*

| State | Fiscal year 1959 | Fiscal year 1960 | Fiscal year 1961 (estimated) |
|---|---|---|---|
| Payments to States and Puerto Rico—Continued | | | |
| South Carolina | $574,079 | $574,079 | $591,704 |
| South Dakota | 320,606 | 320,606 | 329,254 |
| Tennessee | 732,709 | 732,709 | 756,031 |
| Texas | 975,292 | 975,292 | 1,006,445 |
| Utah | 243,946 | 243,946 | 249,939 |
| Vermont | 242,360 | 242,360 | 248,270 |
| Virginia | 648,598 | 648,598 | 668,512 |
| Washington | 392,890 | 392,890 | 403,862 |
| West Virginia | 495,888 | 495,888 | 510,298 |
| Wisconsin | 598,286 | 598,286 | 616,719 |
| Wyoming | 220,516 | 220,534 | 225,740 |
| Subtotal | 24,427,087 | 24,445,708 | 25,165,708 |
| Regional research fund [1] | 5,899,875 | 5,900,000 | 6,150,000 |
| Administration | 667,533 | 708,000 | 738,000 |
| Unobligated balance | 59,213 | | |
| Payments authorized for marketing research, sec. 204(b), Agricultural Marketing Act | 500,000 | 500,000 | 500,000 |
| Subtotal | 31,553,708 | 31,553,708 | 32,553,708 |
| Penalty mail: Reimbursement to Post Office Department for penalty mail costs of State experiment station directors | 250,000 | 250,000 | 250,000 |
| Grand total | 31,803,708 | 31,803,708 | 32,803,708 |

[1] Allotted to States by projects on the basis of recommendations by a committee of experiment station directors and approved by the State Experiment Stations Division, Agricultural Research Service.

TABLE C.—*Distribution of Federal-grant payments to States by fields of research at State agricultural experiment stations, fiscal year 1959*

| *Field of research* | *Federal-grant funds* |
|---|---|
| Agricultural engineering | $986,000 |
| Animal diseases and parasites | 1,634,000 |
| Farm economics and adjustment | 1,356,000 |
| Field crops | 3,792,000 |
| Horticultural crops | 1,695,000 |
| Home economics and human nutrition | 1,850,000 |
| Insect control | 1,634,000 |
| Livestock and poultry | 5,549,000 |
| New and expanded uses of agricultural products | 1,079,000 |
| Plant diseases | 1,757,000 |
| Soil and water conservation | 3,237,000 |
| Forestry crops | 277,000 |
| Marketing (domestic) | 5,980,962 |
| Total obligations | 30,826,962 |
| Administration | 667,533 |
| Penalty mail | 250,000 |
| Unobligated balance | 59,213 |
| Total appropriation | [1] 31,803,708 |

[1] Includes $500,000 sec. 204(b) Agricultural Marketing Act funds.

Mr. NATCHER. The increase is for $1 million.

We have with us at this time Dr. Elting and I am just wondering, Doctor, if you have a general statement to make to us.

Dr. ELTING. I would appreciate the opportunity, Mr. Chairman, to make a brief statement.

Mr. NATCHER. You may proceed.

Dr. ELTING. Each year in the course of these hearings we attempt to provide some insight to the committee on the progress of research

under the experiment station program which is supported in part by the Federal payments to States, a part that this year constitutes about $1 for each $3.40 provided by the experiment station from funds of non-Federal origin.

PROGRESS OF PROGRAMS

With your permission I would like to have placed in the record pages 139 to 144 which do give a number of the examples of research accomplishments.

Mr. WHITTEN. We'd be glad to have those included in the record.

(The information referred to follows:)

PAYMENTS TO STATES AND PUERTO RICO

SELECTED EXAMPLES OF RECENT PROGRESS

1. *More beef and faster weight gains result from inbreeding.*—The beef cattle research program, in which 40 State experiment stations and the Department have been cooperating since 1947, is beginning to pay off in more and heavier calves at weaning. In a series of experiments at the Colorado station, selected line-crosses of Hereford cows outproduced control groups by 50 percent in pounds of calves weaned. In addition, calves from the inbreds gained about 5 percent faster and reached marketable weight in less time than did the control animals. Thus, even with a slow reproducing species like cattle, heritable qualities such as weight advantage at weaning, larger calf crops per herd, and more rapid weight gain following weaning are possible through inbreeding and cross-breeding in as brief a period as 12 years. Greater efficiency in meat production obtained in this way is low in cost and shows promise of developing an increased domestic market for feedstuffs.

2. *New instrument measures water needs of fruit trees.*—The Idaho station has developed an instrument that determines the water requirements of fruit trees by measuring minute changes in the daily growth or shrinkage of tree trunks. The device, called a dendrometer, is expected to do away with the traditional uncertainties about tree water needs in irrigated orchards. In experimental apple orchard tests, 5 irrigations based on dendrometer readings gave as high a yield and better fruit color than 12 irrigations spaced arbitrarily at uniform intervals. In experimental prune orchards, 4 irrigations based on dendrometer readings gave yields, fruit size, and fruit quality equal to that of trees irrigated 11 times by uniformly spaced applications. Commercial use of the dendrometer offers (1) prevention of fruit losses and reductions in yield through timely discovery of critical water deficiency in irrigated orchards and (2) greater conservation of water and lower cost of water application.

3. *Two high-oil, high protein corn hybrids announced.*—The Nation's livestock feeders and the starch industry are expected to benefit materially from development of two new high-oil, high-protein corn hybrids announced by the Illinois station. These hybrids yield about 30 percent more oil and 10 percent more protein than previously available commercial hybrids. They are similar to standard hybrids in grain yield, standability, and other traits. The new hybrids were developed during the past 10 years by crossing standard inbred lines with high-oil and high-protein strains.

4. *Confinement system for hogs need not be expensive.*—Research with swine at the Iowa station shows that so long as the growing and finishing animals are protected against extremely low or high temperatures their performance will compare favorably with that of hogs reared by conventional methods. In the mean temperature range of 35° to 40° F., young, growing, finishing swine are not severely retarded when protected from wind and wet. Heavier swine raised in confinement showed drops in daily gains and feed efficiency for each degree of temperature rise from 80° to 85° F. Under modern hog rearing systems, a considerable amount of money may be invested in specialized housing and equipment designed to maintain a closely controlled temperature environment. Results of the Iowa research and similar findings in other State and Federal research should serve as a guide to hog producers for installation of controlled-environment facilities.

5. *Quick relief for cage layer fatigue developed.*—A satisfactory method for achieving the rapid recovery of hens that become afflicted with cage layer fatigue has been developed by the Maryland station. This method consists of fastening a flexible but firm plastic pad about one-quarter inch thick on the floor of the cage of the affected birds. Excellent field results have also been reported with the use of wooden shingles or a thin board, instead of the plastic pad. Apparently cage layer fatigue is due not to poor diet but to the pressure of the hen's feet upon the wire cage floor, and alleviation of that pressure by the plastic pad will bring recovery in about a week. It is reported that up to 5 percent of hens kept in cages at commercial egg laying establishments are troubled with cage layer fatigue.

6. *Grazing of calves proves profitable in South.*—Most beef animals produced in Mississippi result from a cow-calf system with the calves being dropped in the spring and sold at weaning. Mississippi station findings indicate that this system of beef production is the least profitable of the several systems studied. Returns, above variable costs, from the average amount of grazing of native pastures found on Prairie farms (260 acres of open permanent pasture) amount to approximately $1,200 per farm for this system of beef production, compared to $2,800 for farms which roughed the calves through the winter on hay, silage, and cottonseed meal and fed them out on permanent pasture the next year. Grazing weaned calves on temporary winter pasture before selling, instead of selling at weaning, increased net returns to approximately $3,600 per farm. When 140 acres of the 260 acres of native pasture land were improved to the average level of improved pastures of the Prairie area, the returns above variable costs, other than those incurred for improving the pasture, amounted to $4,200 per farm from the pasture area. These four systems were the most promising of those studied.

7. *Preslaughter handling of livestock responsible for "dark cutters".*—Producers marketing livestock sometimes get a considerable discount on the price paid them for beef cattle because the carcasses dressed out as "dark cutters." According to research reported by the Missouri station, carcasses classed as "dark cutters," as indicated by their dark-colored muscling, are usually the result of preslaughter handling, such as that which may be encountered before and during travel to market. In the Missouri experiments, it took 4 days before animals subjected to stress and strain could be brought back to normal and yield better quality meat. Hogs and lambs may also dress out as "dark cutters" for the same reason. The problem can be avoided by proper handling of animals en route to market and prior to slaughter.

8. *Nutritionally available amino acids provided by corn.*—Though the quantities of essential amino acids needed by adult men and women have been determined, there is still uncertainty whether human requirements are met when these same amounts of amino acids are provided by particular foods. This is because some foods will not "give up" their amino acids to the body in the normal digestive process. The Nebraska station has shown in recent research that two amino acids—valine and threonine—when provided by corn, are completely available to the body. Research of this kind will eventually make possible matching human amino acid needs with the amounts nutritionally available from respective foods.

9. *Plant growth obtained with simple cells in culture.*—A long awaited goal in plant science, the growth of plants from free cells, has been achieved by botanists of the Cornell station. They succeeded in taking simple unspecialized cells from carrot roots and nurturing them so that they developed into plants typical of the parent, including roots, shoots, whole plants, flower, and seed. In other words, they have made unspecialized cells behave like specialized reproductive cells. The initial medium in which the cells grew was coconut milk, a medium that normally nourishes an immature embryo and contains substance that promote cancer-like random proliferations in adult cells. Knowledge growing out of this research may lead to many new fields of basic and applied scientific research. The study was conducted in cooperation with the National Science Foundation and the National Cancer Institute.

10. *Vitamin A needs of bovines studied.*—The Oregon station has studied many aspects of the effect of prenatal vitamin A intake in dairy cattle. The results show that the greatest danger from insufficient vitamin A levels in bovines is during calfhood or even earlier, during the prenatal period. In the Oregon experiments, the vitamin A liver values for dairy calves reared on a vitamin A-deficient diet seldom reached normal levels later in life, even after such

animals had been placed on a normal diet for a year. Cows that suffered from inadequate vitamin A during calfhood often develop abnormal adrenal glands, which among other things lowered their resistance to disease. Lower than normal milk production and poor breeding also showed up in such cows. In exceptional cases, abnormal brains developed.

11. *Why boll weevils resist insecticides in late season.*—Basic research on boll weevil physiology and nutrition, carried on cooperatively by the Texas station and the Department, has brought a better understanding of late season boll weevil resistance to insecticides. Chemically defined diets were developed to permit rearing experimental boll weevil larvae throughout the year. This procedure permitted more precise measurements of metabolic reactions and their relationship to insecticide resistance and made possible continuous observations rather than seasonal ones dependent on field collections. During the latter part of the growing season, many boll weevil adults were found entering a period of diapause, a physioligical resting stage in which they continued physically active. Weevils in this stage were up to 100 times as tolerant to certain chlorinated hydrocarbon insecticides as were weevils in the normal physiological and reproductive state.

12. *Study on ketones will aid cheese manufacturers.*—The characteristic flavor of blue cheese is caused by a family of chemicals known as ketones. Molds produce ketones by acting upon certain fatty acids in the butterfat or milk. Research conducted by the Wisconsin station, found that sometimes the molds changed fatty acids to ketones and sometimes they would not. Repeated tests led to a growth medium in which no ketones were ever formed, even when the mold grew well. Addition of various materials, such as vitamins, amino acids, and the like, enabled the mold in this particular medium to form ketones. It was noted that the mold in this medium produced spores, while the unsupplemented medium did not. Then it was found that where spores broken free from their cells were incubated with fatty acids, they produced ketones and blue cheese flavor dependably and predictably. In other words, the spores were the active ketone producers. From an applied standpoint, these findings will help cheesemakers produce a better product because they can regulate ripening and predict with considerable accuracy the flavor and quality of the cheese. The research also opens up a whole new field of basic investigation. The spore cells were formerly thought to be involved only in reproduction of the organism, but now it is known that they also have a functional, flavor-creating purpose.

13. *Time of harvest affects quality of tomatoes which are stored.*—The critical point in the harvesting of tomatoes for the storage market is the point at which the fruit begins to show red pigmentation. The Arkansas station has shown that deferring harvest of green-pack tomatoes until the fruit begins to show red improves the market quality and prolongs the period of satisfactory storage at 40° to 60° F. In the experiments, tomatoes harvested after red coloring began contained more sugar than tomatoes harvested totally green. And unlike tomatoes harvested while totally green, their acid content continued to decline while in cold storage.

### REGIONAL RESEARCH FUND

For the conduct of research in which two or more State agricultural experiment stations are cooperating to solve problems that concern the agriculture of more than one State, there is available the regional research fund authorized by section 3(c)(3) of the Hatch Act, as amended (formerly sec. 9(b)(3) of the Bankhead-Jones Act). This fund totals $5,900,000 in 1960. Allotments are made to stations on the basis of projects recommended by the Committee of Nine established by the act to represent the State stations.

The following are examples of work carried in 1959 under this fund:

1. *Virus responsible for mucosal disease.*—Evidence accumulated by the cooperative regional research project of the north central agricultural experiment stations and the Department that a virus is probably responsible for producing mucosal disease in cattle. The North Dakota station has found that the causative agent can be transmitted from animal to animal in drinking water, and that sheep may be infected in addition to cattle. These discoveries will be important in developing successful procedures for controlling the disease. A special technique for growing the mucosal disease agent in the laboratory has been developed by the Iowa, North Dakota, and Nebraska stations, and a test to distinguish infected animals from those susceptible has been developed by the North Dakota station. These advancements provide the first definite evidence that a preventive vaccine might be developed.

2. *Western livestock producers income improved through better market information.*—A regional marketing project conducted cooperatively by the 11 Western States experiment stations with the Agricultural Marketing Service has provided a basis for substantially improving returns to livestock producers who sell their cattle to order buyers, feeders, and packers. Such sellers have lacked adequate market information since most market news has come from terminal markets. A research experiment was carried out in which a weekly market report showing livestock prices, sales, and movements at country points was provided to a sample of producers. New Mexico stockmen reported receiving 2 to 3 cents per pound more for their cattle because of this report. An increase of as much as one-half cent per pound applied to livestock sales in that State alone would increase annual income by more than $1.5 million.

As a result of this marketing research project and the followup work of service agencies, information on country sales is now being made available through the regular market news service of the Department to livestock producers by radio and newspaper. In addition the Department is cooperating with the extension services of Western States in issuing a regional short-term outlook report. The additional information places livestock producers in a stronger bargaining position than previously by having more knowledge of the true value of their commodity on the market of their choice, and will enable the producers to continue to profit from results of this research.

3. *Research directed to reduce losses from stone fruit virus diseases.*—Over 45 virus diseases of stone fruits have been found in the Western States. Orchardists and nurserymen suffer losses growing out of stone fruit virus diseases running into several million dollars annually. Some progress toward alleviating such losses is being made by the State experiment stations taking part in the western regional project on virus diseases of deciduous fruit trees. The Oregon station found that a single virus causes 4 distinct diseases. Indexing to determine whether fruit trees are free from the 4 diseases will be simplified and less costly since they need now concern themselves with only one virus. The California station has shown that propagating wood can be freed of virus by long, hot air treatment. Some of the best stone fruit understock seed sources have been found by the Washington station and determined to be virus free. This material has been made available to scientists for experimental work and to nurserymen. Equipment devised by the Utah station has already contributed toward a better understanding of the nature and composition of the virus particle.

### PENALTY MAIL

The Hatch Act of 1887, as amended (7 U.S.C. 361f), provides for the mailing under penalty indicia by agricultural experiment stations of bulletins, reports, periodicals, reprints of articles, and other publications, including lists of publications necessary for the dissemination of results of research. Mailings include not only those to individual farmers upon request but also to newspapers, libraries, other experiment stations, and organizations interested in results of research and dissemination of such results.

Under the terms of Public Law 705, approved July 14, 1956, the Department paid to the Post Office Department $250,000 to cover postage on third and fourth class mail sent under the penalty privilege by the State agricultural experiment stations during the fiscal year 1959. This payment covered the procurement of 3,101,150 envelopes, wrappers, labels, and tags by the experiment stations in the 50 States and Puerto Rico. Approximately the same volume of mail is anticipated in fiscal years 1960 and 1961.

### OBLIGATIONS OF STATE AGRICULTURAL EXPERIMENT STATIONS

Dr. ELTING. You have also from time to time expressed interest in the details regarding the support which is provided to the experiment station, both from the Federal grant sources and from the non-Federal sources.

Mr. WHITTEN. We'd be glad to have that in the record and I would like to ask you if that is broken down as to cash contributions by States and others or whether that includes values, services, buildings and other things that may be provided?

Dr. ELTING. The table that I hand you, Mr. Chairman, covering the expenditures for the fiscal year 1959 is entirely cash expenditures.

Mr. WHITTEN. Yes. Well, that would go in the record.

*Obligations of agricultural experiment stations—fiscal year 1959 (includes obligations under sec. 204(b) of the Agricultural Marketing Act)*

| Station | Federal funds | Non-Federal funds | Grand total | Ratio | |
|---|---|---|---|---|---|
| Alabama | $819,784.33 | $1,949,616.31 | $2,769,400.64 | 2.37 | |
| Alaska | 218,143.00 | 265,021.00 | 483,164.00 | 1.21 | |
| Arizona | 372,313.17 | 1,474,165.02 | 1,846,478.19 | 3.95 | |
| Arkansas | 692,517.00 | 1,800,853.18 | 2,493,370.18 | 2.60 | |
| California | 882,657.00 | 11,722,919.71 | 12,605,576.71 | 13.28 | |
| Colorado | 485,901.00 | 1,134,511.43 | 1,620,412.43 | 2.33 | |
| Connecticut State | 146,347.14 | 692,118.76 | 838,465.90 | 4.72 | 3.9 |
| Connecticut Storrs | 213,031.74 | 744,807.54 | 957,839.28 | 3.49 | |
| Delaware | 257,513.26 | 511,839.08 | 769,352.34 | 1.98 | |
| Florida | 481,093.66 | 4,843,707.95 | 5,324,801.61 | 10.06 | |
| Georgia | 908,342.45 | 2,993,575.80 | 3,901,918.25 | 3.29 | |
| Hawaii | 277,235.00 | 836,300.10 | 1,113,535.10 | 3.01 | |
| Idaho | 383,040.93 | 881,815.11 | 1,264,856.04 | 2.30 | |
| Illinois | 858,827.13 | 2,915,065.09 | 3,773,892.22 | 3.39 | |
| Indiana | 802,096.43 | 3,461,248.90 | 4,263,345.33 | 4.31 | |
| Iowa | 846,511.30 | 2,892,777.77 | 3,739,289.07 | 3.41 | |
| Kansas | 562,631.21 | 2,310,736.04 | 2,873,367.25 | 4.10 | |
| Kentucky | 868,893.50 | 1,423,678.45 | 2,292,571.95 | 1.63 | |
| Louisiana | 609,369.00 | 2,889,361.93 | 3,498,730.93 | 4.74 | |
| Maine | 399,142.29 | 446,764.72 | 845,907.01 | 1.11 | |
| Maryland | 450,632.04 | 1,128,806.96 | 1,579,439.00 | 2.50 | |
| Massachusetts | 428,470.00 | 662,429.49 | 1,090,899.49 | 1.54 | |
| Michigan | 866,635.92 | 2,881,182.03 | 3,747,817.95 | 3.32 | |
| Minnesota | 737,700.74 | 3,405,035.14 | 4,142,735.88 | 4.61 | |
| Mississippi | 855,359.09 | 1,997,455.73 | 2,852,814.82 | 2.33 | |
| Missouri | 782,980.00 | 1,821,858.05 | 2,604,838.05 | 2.32 | |
| Montana | 387,247.74 | 1,507,274.26 | 1,894,522.00 | 3.89 | |
| Nebraska | 544,101.55 | 2,005,070.92 | 2,549,172.47 | 3.68 | |
| Nevada | 263,447.00 | 232,090.71 | 495,537.71 | .88 | |
| New Hampshire | 288,315.00 | 188,286.36 | 476,601.36 | .65 | |
| New Jersey | 437,828.76 | 1,959,337.90 | 2,397,166.66 | 4.47 | |
| New Mexico | 346,155.00 | 531,430.27 | 877,585.27 | 1.53 | |
| New York Cornell | 772,568.03 | 4,312,325.27 | 5,084,893.30 | 5.58 | 6.5 |
| New York State | 119,598.47 | 1,488,096.35 | 1,607,694.82 | 12.54 | |
| North Carolina | 1,127,280.00 | 2,354,739.59 | 3,482,019.59 | 2.08 | |
| North Dakota | 387,018.00 | 1,289,694.19 | 1,676,712.19 | 3.33 | |
| Ohio | 929,668.00 | 2,686,462.01 | 3,616,130.01 | 2.88 | |
| Oklahoma | 590,382.00 | 1,812,160.51 | 2,402,542.51 | 3.06 | |
| Oregon | 520,517.00 | 2,644,410.69 | 3,164,927.69 | 5.08 | |
| Pennsylvania | 1,032,672.00 | 1,995,303.47 | 3,027,975.47 | 1.93 | |
| Puerto Rico | 776,121.21 | 1,545,300.90 | 2,321,422.11 | 1.99 | |
| Rhode Island | 287,397.06 | 266,839.16 | 554,236.22 | .92 | |
| South Carolina | 669,036.00 | 1,073,660.26 | 1,742,696.26 | 1.60 | |
| South Dakota | 412,456.00 | 1,132,197.32 | 1,544,653.32 | 2.74 | |
| Tennessee | 863,754.95 | 1,080,336.92 | 1,944,091.87 | 1.25 | |
| Texas | 1,157,440.00 | 4,574,972.34 | 5,732,412.34 | 3.95 | |
| Utah | 370,711.00 | 905,374.59 | 1,276,085.59 | 2.44 | |
| Vermont | 280,133.39 | 219,960.69 | 500,094.08 | .78 | |
| Virginia | 755,315.50 | 1,904,778.16 | 2,660,093.66 | 2.52 | |
| Washington | 602,148.94 | 3,230,341.86 | 3,832,490.80 | 5.36 | |
| West Virginia | 601,336.30 | 570,053.00 | 1,171,389.30 | .94 | |
| Wisconsin | 763,566.52 | 3,936,975.00 | 4,700,541.52 | 5.15 | |
| Wyoming | 339,314.63 | 661,036.36 | 1,000,350.99 | 1.94 | |
| Total | 30,832,698.38 | 104,196,160.35 | 135,028,858.73 | 3.37 | |

Mr. WHITTEN. Dr. Elting, I think all members of this subcommittee have been on here quite a number of years and so are thoroughly familiar with how your operation is set up and the supervision to prevent duplication and things of that sort. So we won't burden the record with that since we are thoroughly familiar with it.

## BASIC RESEARCH AT STATE EXPERIMENT STATIONS

Have there been any significant things that have happened in this field of activity in the last fiscal year other than just the orderly devel-

opment or the orderly progress that we have come to expect each year?

Dr. ELTING. I think that there is nothing that we would label as particularly unique, Mr. Chairman. The level of output is certainly high. There is one study which has been completed within the year that would be of interest, showing a significant trend to increasing the level of basic research.

Five years ago we reported to the committee that the level of basic research supported by these Federal grants was the magnitude of about 12 percent of the total. A study completed about a year ago and which, incidentally, used as faithfully as possible the criteria laid down by the National Science Foundation, indicates that currently between 22 and 23 percent of the research is of the nature that could be characterized as basic in nature.

I mention that simply to show the increasing competency and quality of the research staff at these institutions and their desire to do the best type of research, the most fundamental type of research that is consistent with the problem solving that confronts them.

### NEED FOR BUDGET INCREASE

Mr. WHITTEN. I know that members of this subcommittee are strong belivers in the land-grant college and experiment stations setup.

I believe it was testified yesterday that this experiment station program had been increased from $12 million annually in 8 or 9 years to some $32 million.

The subcommittee tried to take the ceiling off the annual payments that could be made some years ago and that expansion has occurred and I am sure every man on this subcommittee would like to go along with the increase of a $1,000,000, notwithstanding these large increases in recent years if it was in good reason and could be done.

However, we too are faced here with an overall budget limitation and a majority of the Appropriations Committee have committed themselves to reducing budgets and we find this $1,000,000 increase recommended by the Department of Agriculture in the same bill where they have drastically cut flood prevention and where they have recommended cuts be made in other research activities.

If I notice any real change in this year's budget from prior years it has been the Department's urging that the research fund be shifted over to utilization and to other types of research and away from production research since we now have on hand so many surpluses and yet, it is my understanding that the experiment stations are engaged primarily in production research.

Now, how does that inconsistency get into your budget or is that determination made at a higher level than you?

Dr. ELTING. It isn't necessary, I think, to review the cooperative relations which exist between the Federal Department and the State experiment stations, nor the fact that is well known to you that experiment stations are particularly geared to deal with the local problems which exist in each State even though a great deal of their work has regional or even national significance.

A significant trend in the research in the last years has been toward research that particularly attacks the problem of greater efficiency of production, a need, I believe, which is consistent with your own observations that greater efficiency made possible through research has been a primary element in keeping many farmers in business or at least making the cost-price squeeze with which they are confronted somewhat bearable.

Mr. WHITTEN. Dr. Elting, I'm in thorough accord with the research in this field. Without it the farmers would be out of business, the consumer would probably be hungry, but apparently the Secretary hasn't bought your and my argument except in this one particular item because in the rest of this budget, he's shifted to the other direction.

Dr. ELTING. If I may, Mr. Chairman, review very quickly the pattern of the increases to which you have referred, I think it will throw some light on why the stations are somewhat in a critical stage.

Mr. WHITTEN. The position the departmental budget puts us in—we ran for these places, so we are not complaining—but if we restore the proposed cuts then we have raised the budget. Then when we get to experiment stations, the Secretary and the President have recommended this $1 million increase but at the expense of these other items.

So we don't find any way to go along with this $1 million because of the pressures of comparing this with these other field activities. It looks like to me that we are bound to lose either way we go.

Dr. ELTING. I appreciate this becomes a matter of judgment. In response to the question you did ask a few minutes ago as to whether the decision was made to place more of the emphasis in utilization research, that, of course, was a policy decision in which I believe Department members at this table did not share, but the increase in payments to States, while it doesn't offset the $700,000 in shifts that were prepared within the Department's budget, it does in a sense serve the same area.

Now, that doesn't mean that they directly offset each other. The facts are, however, that, if I may refer to the pattern of increase which has occurred in the grants, the primary growth in this fund occurred during 3 fiscal years, 1955, 1956, and 1957 when these funds were considerably more than doubled.

You will recall also that an increase of $1,200,000 was granted in fiscal year 1959 in payments to States which the record will show were largely made available to meet the salary squeeze that existed at these institutions. A careful analysis of salaries during the past 3 years shows that an average increase of 19.1 percent has occurred during that 3-year period.

That would actually require in order to maintain the same volume of research that we had in fiscal 1957, approximately $4,800,000. Now during this same period there had been two increases in payments to States; one of $850,000 in 1958; $1,200,000 in 1959, none for the current year. So there is a process of attrition occurring. The level of research is maintained as high as it is only because a higher portion of the total cost of the research supported by the Federal payments has been met by funds of non-Federal origin.

NEW AND COMPLETED RESEARCH PROJECTS

I have a table, Mr. Chairman, that I would submit to you that might be placed in the record. It also tends to answer one other question that was asked earlier in our hearings as to the rate of redirection of research. The fact that there is consistently a turnover of between 15 and 22 percent annually in the projects, indicates that the rate of redirection is fairly high and fairly consistent and certainly in the process of redirection there is continuously a shifting to problems of higher priority or of greater severity.

So this is not a static program in any sense. Reporting the distribution of these funds by broad subject matter areas fails to reflect this because on that basis the relative emphasis in these fields does tend to be quite consistent one year to another. The shift that actually occurs in the work plans, the projects themselves, is the place at which this redirection is effected.

Mr. WHITTEN. We'd be glad to have that table in the record.

(The table referred to follows:)

*Summary of new, active, and completed Federal grant fund projects, by years, at the State agricultural experiment stations*

| | Total Federal grant funds available | Projects active at end of fiscal year | New projects approved | Projects revised | Projects completed | Percentage of active projects revised or completed |
|---|---|---|---|---|---|---|
| 1950 | $12,406,208 | 3,972 | 649 | 261 | 473 | 18.5 |
| 1951 | 12,406,208 | 3,965 | 516 | 266 | 523 | 19.9 |
| 1952 | 12,428,708 | 3,849 | 407 | 192 | 523 | 18.6 |
| 1953 | 12,441,208 | 3,736 | 497 | 210 | 610 | 21.9 |
| 1954 | 13,453,708 | 3,800 | 678 | 248 | 614 | 22.7 |
| 1955 | 19,453,708 | 4,592 | 1,316 | 276 | 524 | 17.4 |
| 1956 | 24,638,218 | 5,266 | 1,203 | 244 | 529 | 14.7 |
| 1957 | 28,836,093 | 5,927 | 1,150 | 299 | 489 | 13.3 |
| 1958 | 29,665,127 | 5,871 | 750 | 296 | 806 | 18.8 |
| 1959 | 30,326,963 | 5,910 | 764 | 308 | 725 | 17.5 |

RESEARCH PROPOSED UNDER BUDGET INCREASE

Mr. WHITTEN. I'll say again, Dr. Elting, we on this subcommittee have a strong belief in this system and I would personally hope that there was some way or some means to go along with the funds requested.

I do have to point out, however, that we of necessity have to stay under the overall budget ceiling due to circumstances beyond our control. And we do have in the same budget no funds for increased employees for soil conservation districts, we have this $3 million cut in flood prevention which will drag out the period in which the floods will do damage.

We've got this $700,000 that would be cut from various research and similar kinds of institutions. So we do have a real problem.

Now I would like to go further and by not going into this into greater detail we are glad to have such things you want in the record. It comes from very thorough familiarity that this subcommittee has for this very fine work. We have a breakdown on the work that is being done on the regional type of agreements.

Earlier we mentioned tobacco which is of special interest to our colleague from Kentucky. This is a rather major commodity in his area. Would you give us for the record the number of such recent projects and of what commodities and locations and whether you contemplate an expansion in that field through the use of this $1 million or whether the $1 million would be just distributed out to the States?

REGIONAL RESEARCH PROJECTS

Dr. ELTING. 25 percent of the fund is set aside as the regional research fund in compliance with the general provisions of the law. We can provide as much detail as would be desirable for the record, Mr. Chairman, on the content of the present regional research program which does cover about 190 regional projects. Much of the regional program represents cooperation between the States and the Department. I offer for the record a statement listing the regional research projects which have been completed and those which are still active.

(The information referred to follows:)

DURATION OF COOPERATIVE REGIONAL RESEARCH PROJECTS

**The regional projects supported by allotments of the regional research fund, authorized by section 3(c)(3) of the Hatch Act, as amended, are listed below by regional number and title with the dates when the first allotment was approved, i.e., "Date begun"; when revisions of the project outlines were approved, i.e., "Date revised"; and when the allotments were terminated, i.e., "Date closed." Changes in titles are not recorded as revisions unless changes have also been made in objectives and procedures. The most recent titles are listed.**

NORTH-CENTRAL REGION

| Regional project | Date begun | Date revised | Date closed |
|---|---|---|---|
| CLOSED PROJECTS | | | |
| NCM-1. Maintaining and expanding the market for dairy products. | July 1947 | | June 1953. |
| NCM-2. Influence of consumers' acceptance on the marketing of fruits and vegetables. | do | | Do. |
| NCM-3. Marketing slaughter livestock by carcass weight and grade. | do | June 1950 | Do. |
| NCM-4. The place of frozen food locker plants and home freezer units in the slaughtering, processing, distribution, and consumption of meats. | do | | June 1951. |
| NCM-5. The relation of quality factors to customer acceptance of potatoes. | do | June 1950 | Do. |
| NCM-6. The development and analysis of improved techniques for marketing eggs. | do | March 1951 | June 1954. |
| NCM-8. Price supports and marketing agreements as they affect potato marketing in the North Central States. | July 1950 | | Do. |
| NCM-9. Methods and costs in the retail distribution of meat and meat products. | July 1952 | | June 1958. |
| NCM-10. Economics of grain storage | July 1951 | June 1952 | Do. |
| NCM-12. Adapting the marketing structure for dairy products to changing patterns of utilization and changing technology.<br>*Subprojects:* (1) Distribution of milk in paper containers from centralized bottling plants to outside cities and villages, begun July 1953; (3) effects of new developments in milk distribution upon markets and individual firms, begun July 1954; and (4) opportunities for expanding milk consumption in schools, begun March 1954. | July 1953 | June 1954 (3) | June 1954 (1); April 1957 (3), (4). |
| NCM-13. Quality price relationship of sweet corn for processing. | do | | June 1959. |
| NCM-15. Potato grade-price relationships in the north-central region. | July 1955 | | Do. |

NORTH-CENTRAL REGION—Continued

| Regional project | Date begun | Date revised | Date closed |
|---|---|---|---|
| CLOSED PROJECTS—continued | | | |
| NCM-16. Economic analysis of programs for expanding domestic consumption of food. | July 1955 | | June 1956. |
| NCM-21. Nature of tenderness of meat | July 1957 | | June 1958. |
| NC-3. The design of dairy barns and related structures, to provide for best management and use of space, high labor efficiency and production of high quality milk. | July 1947 | | June 1953. |
| NC-4. Selection and utilization of materials for farm building construction. | do | | Do. |
| NC-5. Nutritional status and dietary needs of population groups in the north central region. *Subprojects:* (*1*) Nutritional status and dietary requirements of older women; and (*2*) nutritional status of school children. | do | September 1951 | June 1959. |
| NC-8. Improvement of quality and productiveness of poultry through breeding. | do | June 1952 | June 1957. |
| NC-10. Eradication or control of weeds and other undesirable plants. *Subprojects:* (*1*) Quackgrass control, begun July 1949; (*2*) Johnsongrass control, begun July 1951. | July 1949 (*1*); July 1951 (*2*). | June 1951 | June 1953. |
| NC-11. Breeding and evaluating the small seeded grasses and legumes for the north central region. *Subproject:* (*1*) Regional uniform nursery trials of small-seeded legumes and grasses. | July 1949 | do | Do. |
| NC-12. Economic aspects of soil conservation in the Midwest. | do | | Do. |
| NC-13. Death losses in young pigs | do | September 1950 | Do. |
| NC-14. Stone fruit virus diseases and their control | July 1950 | | Do. |
| NC-21. Measurements of factors within family living which affect personal and social behavior. | July 1953 | | June 1955. |
| NC-45. Agricultural adjustments in a developing economy. | July 1957 | | June 1958. |
| NC-46. Soil moisture storage and the use of water by agronomic crops. | do | | Do. |

| Regional project | Date begun | Date revised |
|---|---|---|
| ACTIVE PROJECTS | | |
| NCM-7. Maintaining quality of poultry products in market channels. | July 1947 | June 1950; June 1955. |
| NCM-11. Measuring and appraising the impact of agricultural price and income policy upon producers, marketing agencies, and consumers. *Subprojects:* (*1*) Wheat price and income policy; (*2*) dairy price and income policies, begun March 1954; (*3*) corn price and income policy, and amendment approved June 1955; (*4*) hog price and income policy begun July 1956; (*5*) cattle price and income policy begun October 1956; (*6*) poultry and poultry products price and income policy begun October 1957.. | November 1953 | |
| NCM-12. Adapting dairy marketing systems and practices to changing utilization and technology. | July 1953 | June 1955; May 1958. |
| NCM-14. Economic appraisal of the transportation, the grade-price quotation relationships, and the processing of poultry products in the North Central States. | July 1954 | |
| NCM-17. Marketing of farm woodland products in the north-central region. | July 1955 | June 1956. |
| NCM-18. An analysis of the changing patterns of livestock markets in the Corn Belt region. | July 1956 | |
| NCM-19. Pricing and trading practices for grain in the north-central region. | do | |
| NCM-20. Marketing Christmas trees and greens in the north-central region. | do | |
| NCM-22. Market grades and standards for cut chrysanthemums, carnations, gladiolus, and roses. | March 1958 | March 1959. |
| NCM-23. Facilitating the marketing of seed through improved testing and handling procedures. | July 1957 | |
| NCM-24. Quality relationships in marketing fresh tomatoes | November 1957 | |
| NC-1. Improvement of beef cattle through breeding methods | July 1947 | June 1954; November 1959. |
| NC-2. Improvement of dairy cattle through breeding | do | Sept. 1953; November 1953. |

NORTH-CENTRAL REGION—Continued

| Regional project | Date begun | Date revised |
|---|---|---|
| ACTIVE PROJECTS—continued | | |
| NC-6. Respiratory diseases of poultry | July 1947 | June 1949; March 1950; March 1954; June 1957. |
| NC-7. New plants: The introduction, multiplication, preservation, and evaluation of new plants for industrial and agricultural use. | do | October 1956. |
| NC-9. Utilization of materials to meet housing needs of rural families. | do | November 1951; November 1958. |
| NC-10. Eradication or control of weeds and other undesirable plants. *Subprojects:* (*3*) Factors affecting the germination of weed seeds; and (*4*) factors influencing activity of vegetative buds in weedy plants. | July 1949 | June 1951. |
| NC-11. The development of improved techniques of forage crop evaluation. | do | June 1951; October 1956. |
| NC-13. Death losses in young pigs | do | September 1950; June 1954. |
| NC-14. Virus diseases of stone fruits and pome fruits and their control (amendment approved June 1957). | July 1950 | March 1955. |
| NC-15. How young families get established in farming | July 1952 | June 1954. |
| NC-16. Mineral deficiencies in soils | do | March 1955; April 1956. |
| NC-17. Value of organic matter and soil and crop management practices in improving soil structure and productivity. | do | September 1957. |
| NC-18. The impact of population changes upon rural communities of the north-central region. | do | June 1955; November 1957. |
| NC-19. Fundamental problems associated with the accumulation of pesticidal chemicals in soils. | July 1953 | November 1953; March 1954; November 1958. |
| NC-20. Factors influencing European corn borer populations | do | May 1958. |
| NC-22. Investigations on oak wilt | do | October 1956. |
| NC-23. Farm structures to meet environmental requirements of dairy cattle, swine, and poultry. | do | March 1959. |
| NC-24. Criteria for selection and use of adolescents' clothing | September 1954 | June 1955; March 1959. |
| NC-25. Factors affecting the utilization of feed by ruminants | July 1954 | June 1955. |
| NC-26. Weather information for agriculture | November 1954 | March 1955. |
| NC-27. Causes and control of bloat in ruminants | July 1955 | |
| NC-28. Improving information for farm development and management. | do | |
| NC-29. Migration of the potato leafhopper and its causes | do | |
| NC-30. Quality evaluation of soft winter wheats | do | |
| NC-31. Effect of large quantity preparation and service on quality and yield of meat, poultry, vegetables, and milk and milk products. | October 1956 | May 1958. |
| NC-32. Factors affecting financial security of rural families | July 1956 | |
| NC-33. Pesticide residues on or in food, feed, and forage crops (their magnitude, character, and persistence). | September 1956 | |
| NC-34. Mucosal diseases of cattle | July 1956 | |
| NC-35. Potato improvement through parental line breeding | do | |
| NC-37. Improvement of alfalfa and other forages through basic studies in genetics and pathology. | October 1956 | April 1957. |
| NC-38. The spotted alfalfa aphid | July 1957 | |
| NC-39. Biology and control of plant parasitic nematodes | do | |
| NC-40. Water infiltration rate methods and determinations on soils. | September 1957 | |
| NC-42. Winter injury and survival in field crops | July 1957 | |
| NC-43. Physiologic responses of laying fowl to their environment | September 1957 | |
| NC-44. Shipping fever of cattle | July 1957 | |
| NC-47. Evaluation of breeding systems for chickens | do | |
| NC-48. Development of materials handling systems for north-central farms. | July 1958 | |
| NC-49. Factors affecting requirements of adult human subjects for protein and amino acids. | do | |
| NC-50. Improvement of lamb meat production through breeding | November 1958 | |
| Regional research fund: Administration, planning, and coordination of cooperative regional research. | July 1959 | |

NORTHEASTERN REGION

| Regional project | Date begun | Date revised | Date closed |
|---|---|---|---|
| CLOSED PROJECTS | | | |
| NEM-1. Maintaining and expanding the market for dairy products. | July 1947 | | June 1954. |
| NEM-2. Marketing and distribution from harvesting to consumer, including processing, of fruits and their products. | do | | June 1953. |
| NEM-3. Studies of merchandising and consumer acceptance, maintenance of quality and condition, and the development of quality tests with vegetables marketed in the Northeast. | do | July 1952; March 1953. | June 1956. |
| NEM-4. Marketing and distribution of potatoes | do | | June 1953. |
| NEM-5. Marketing of poultry products in the Northeast. | do | | June 1952. |
| NEM-5. Research in reducing costs, determining and maintaining quality, and increasing efficiency in the marketing of poultry products. | July 1952 | | June 1953. |
| NEM-6. Marketing forest products | do | | June 1958. |
| NEM-9. Development of improved practices in marketing apples. | July 1953 | | June 1956. |
| NEM-10. Dealer and consumer reactions to factors affecting quality, price, and movement as related to efficiency in marketing potatoes. | do | June 1954 | June 1957. |
| NEM-11. A determination of the factors affecting consumer acceptance, costs, and prices of poultry products in the Northeast. | do | | Do. |
| NEM-13. The production-consumption balance and efficient utilization of milk for nonfluid uses in the northeastern milksheds. | July 1954 | | June 1959. |
| NEM-16. Marketing northeastern fruits and vegetables through processing plants. | July 1955 | | Do. |
| NEM-17. Changes in marketing costs associated with curtailment or expansion in packaging different products and in other consumer services. | July 1956 | | June 1958. |
| NEM-19. Handling methods and costs in storing and packing apples. | do | | June 1959. |
| NE-1. Causes and prevention of reproductive failure in dairy cattle. | July 1947 | March 1954 | June 1958. |
| NE-4. Nutritional status in the Northeast | do | | June 1952. |
| NE-7. Determination of housing needs and preferences of families engaged in each major type of farming in the northeastern region. | do | | June 1949. |
| NE-7. Space, facility, and structural requirements for farmhouses in the Northeast. | July 1949 | | June 1954. |
| NE-10. Management, breeding, and utilization of forage crops adapted to the Northeast: The evaluation of forage crops varieties and strains for use and adaptation in the Northeast. | do | | Do. |
| NE-12. Influence of environmental factors on the effectiveness of herbicides. | July 1954 | | June 1958. |
| NE-14. Stone fruit virus diseases and their control. | July 1950 | | June 1951. |
| NE-16. Relationship of nutrient intake to nutritional status in human subjects. | July 1952 | | June 1956. |
| NE-17. Rural population dynamics | July 1954 | | June 1955. |
| NE-18. Economics of forage production and utilization. | do | | June 1959. |
| NE-20. Basic space requirements for northeastern farmhouses as influenced by household activity patterns. | do | | Do. |
| NE-21. Establishment, persistence, productivity, and feeding value of perennial forage species in the Northeast. | do | | June 1955. |
| NE-30. The relation of certain physiological factors to the productive capacity of dairy cattle. | September 1955 | | June 1958. |

NORTHEASTERN REGION—Continued

| Regional project | Date begun | Date revised |
|---|---|---|
| ACTIVE PROJECTS | | |
| NEM-7. Factors affecting the efficiency of livestock marketing in the Northeast. | July 1954 | March 1959. |
| NEM-8. Market structure and development for floricultural products. | do | May 1958. |
| NEM-14. Merchandising milk and other dairy products | July 1955. | |
| NEM-15. Market development for ornamental nursery products | do | March 1959. |
| NEM-18. Quality maintenance and prepackaging in marketing fresh and processed vegetables. | July 1956. | |
| NEM-20. Effects of changing marketing practices on product quality, consumer acceptance, and returns in marketing potatoes. | July 1957. | |
| NEM-21. The effect of marketing changes upon marketing costs and upon demand and consumption of poultry meat. | do | |
| NEM-22. Facilitating the marketing of seeds through improved procedures for testing the varietal purity and identity of seeds of varieties of perennial forage crops recommended and/or developed for the Northeast. | do | |
| NEM-23. Sales organization for marketing Northeast processed fruits and vegetables. | July 1959 | |
| NEM-24. Marketing of lumber produced by sawmills in the Northeast. | July 1958 | |
| NEM-25. Adapting milk distribution systems and practices to changing conditions. | July 1959 | |
| NE-5. Development of improved methods of diagnosis, treatment, and control of respiratory diseases of poultry. | July 1947 | March 1950; March 1951; March 1955; March 1959. |
| NE-6. Genetic and physiologic bases for poultry improvement | July 1954 | May 1958. |
| NE-8. Essentials of poultry housing for the Northeast | September 1953 | April 1957. |
| NE-9. Discovery and preservation of valuable plant germ plasm | do | Do. |
| NE-11. Soil structure problems in northeastern agriculture | July 1952 | April 1956. |
| NE-13. The mechanization of forage crop harvesting, processing, storing, and feeding. | July 1954 | |
| NE-14. Virus diseases of deciduous tree fruits and their control | July 1955 | May 1957. |
| NE-15. Control and measurement of flavor changes caused by the application of pesticides to growing crops. | July 1954 | May 1958. |
| NE-19. Consumer satisfaction with clothing as related to characteristics of the garments and consumer practices in selection, use, and care. | do | Do. |
| NE-22. Soil-plant-water relationships for irrigation | July 1955 | Do. |
| NE-23. Breeding of small grains for resistance to the hazards of plant pests and climatic conditions in the Northeastern States. | do | March 1959. |
| NE-24. The nutritive evaluation of forages | do | Do. |
| NE-25. Biology and control of wilt pathogens | July 1956 | |
| NE-27. Forest tree improvement and site capability determinations | do | |
| NE-28. Breeding and evaluation of improved varieties of forage corps adapted to the Northeast. | July 1955 | Do. |
| NE-29. Management and productivity of perennial grasses | do | Do. |
| NE-31. Effects of urban industrial expansion on northeastern agriculture. | September 1955 | |
| NE-32. Breeding sweet corn hybrids adapted for the Northeast | July 1956 | |
| NE-33. Economics of irrigation on northeastern farms | do | |
| NE-34. Biology and control of nematodes associated with plant diseases. | do | |
| NE-35. The application of climatology to northeastern agriculture. Amended May 1958. | do | |
| NE-36. Pesticide residues in or on raw agricultural commodities. Amended October 1956. | do | |
| NE-37. Relationships between protein and other selected nutrients and their metabolism and utilization. | do | |
| NE-39. Effective use of soil and fertilizer nitrogen | July 1959 | |
| NE-40. Pathology of breeding failures in cattle | July 1958 | |
| NE-41. Endocrine factors affecting reproduction and lactation in dairy cattle. | do | |
| NE-42. Weed life cycles, soil micro-organisms and light as factors in the control of weeds in the Northeast. | do | |
| NE-43. Profitability of alternative forage systems for northeast dairy farms. | July 1959 | |

SOUTHERN REGION

| Regional project | Date begun | Date revised | Date closed |
|---|---|---|---|
| CLOSED PROJECTS | | | |
| SM-1. The regional marketing of cotton, cottonseed, and cottonseed products. *Subprojects:* (*1*) Factors affecting cotton prices in local markets; (*2*) marketing of cottonseed. | July 1947 | March 1953 | June 1956. |
| SM-2. Maintaining and expanding the market for dairy products. | do | | June 1953. |
| SM-3. Marketing tomatoes | do | | June 1952. |
| SM-4. Increasing efficiency in the marketing and pricing of fresh and processed citrus fruit. | do | March 1948; June 1953. | June 1958. |
| SM-5. Marketing early Irish potatoes | do | June 1951; September 1952. | June 1953. |
| SM-6. Marketing poultry and poultry products | do | June 1950; September 1952. | June 1954. |
| SM-7. Marketing livestock in the South | October 1949 | September 1950; June 1953. | June 1959. |
| SM-9. Improving the marketing of early Irish potatoes. | July 1953 | | June 1956. |
| SM-17. An economic analysis of the effects of fires on insurance and other costs at gins. | January 1956 | | June 1959. |
| SM-20. Improving the usefulness of livestock marketing information. | July 1956 | | Do. |
| S-4. Family food consumption in the southern region in certain types of farming areas. | July 1947 | | June 1952. |
| S-5. The effect of wide variations in soil and weather on the growth and nutritive value of vegetables. | do | | June 1955. |
| S-6. Control of Newcastle disease and complicating respiratory infections of poultry. | July 1948 | June 1949; June 1950; September 1952. | Do. |
| S-7. Breeding improvement of chickens | July 1947 | March 1953 | June 1958. |
| S-8. A study of household activities, facilities, and family preferences in selected areas of the South as a basis for development of functional farmhouse plans. | do | | June 1950. |
| S-11. Southeast farmland tenure studies | July 1949 | September 1950; June 1952. | June 1957. |
| S-12. Production and evaluation of forage crops and pastures in the South. *Subprojects:* (*1*) Pasture and forage evaluation techniques; (*2*) breeding improved forage plants for the South; (*3*) physiological responses of southern forage crops to environmental variables and (*4*) producing, harvesting, processing, and storing forage crop seed, begun April 1954. | do | April 1954 | June 1959. |
| S-13. Breeding, culture, fertilization, and storage of small grains in the South. | do | | June 1954. |
| S-15. Assessment of nutritional status of humans | do | March 1950; July 1950. | Do. |
| S-17. Sweetpotato breeding and production | October 1949 | | June 1950. |
| S-20. Patterns and child rearing in southern families and their relation to personality development of children. | September 1953 | March 1954 | June 1955. |
| S-27. An economic evaluation of forage production and use of beef and dairy farms. | July 1954 | March 1955 | June 1959. |
| S-31. Research and extension publications as tools for disseminating information. | July 1957 | | June 1958. |
| S-40. Interrelations between farm tenure arrangements and agricultural control programs. | September 1957 | | Do. |

SOUTHERN REGION—Continued

| Regional project | Date begun | Date revised |
|---|---|---|
| ACTIVE PROJECTS | | |
| SM-8. Evaluation of alternative vegetable marketing organization and handling methods. Amended June 1956. | July 1952 | |
| SM-10. Establishing guides for efficient organization of the dairy industry under changing conditions in the South. | July 1953 | June 1954; March 1959. |
| SM-11. Transportation of grain and grain products in the South | July 1954 | May 1958; November 1959. |
| SM-12. Improving the market for horticultural specialty products of the southern region. | do | June 1956. |
| SM-13. Why consumers select specified foods | do | June 1957. |
| SM-14. Effects of price support, acreage adjustment and surplus removal programs upon the marketing of southern agricultural products. *Subproject:* (*1*) Tobacco; (*2*) peanuts; (*3*) sugar, begun July 1954; (*4*) cotton, begun June 1955; and (*5*) rice, begun April 1955. | do | May 1958. |
| SM-15. An economic appraisal of the competitive position of the South in marketing eggs and broilers. | do | June 1957. |
| SM-18. The evaluation of the use of fiber tests in the marketing of cotton and the relation of fiber properties to end-product performance. | July 1956 | May 1957. |
| SM-19. Motivating factors in consumer purchases of beef | do | |
| SM-21. Factors influencing market quality of seeds | July 1957 | |
| SM-22. The economic efficiency of marketing Florida, Puerto Rico, and Texas citrus fruits. | July 1958 | |
| SM-23. An analysis of livestock and meat movement in the southern region. | July 1959 | |
| S-1. Genetics and cytology of cotton | July 1947 | September 1953; March 1959. |
| S-2. The mechanization of cotton production, harvesting, ginning, and cleaning. | do | March 1953; March 1954. |
| S-3. Breeding better dairy cattle for the South | do | Do. |
| S-8. Functional requirements and plans for southern rural homes | July 1950 | June 1954; November 1959. |
| S-9. The introduction, multiplication, and evaluation of new plants for industrial and agricultural use and the preservation of valuable germ plasm. | July 1949 | March 1955. |
| S-10. Improvement of beef cattle for the southern region through breeding methods. | do | |
| S-14. Properties of selected southern soils in relation to plant growth and soil genesis. | July 1950 | September 1950; November 1959. |
| S-18. Weed control investigations in the South | October 1949 | November 1954. |
| S-19. Evaluation of the effects of nematodes on plants | September 1953 | March 1959. |
| S-21. Gastrointestinal parasites of ruminants | July 1954 | |
| S-22. Pesticide residues of plant and animal products and soils | do | November 1959. |
| S-23. The application of genetics and cytology to the improvement of southern forest trees. | do | March 1959. |
| S-24. Development and utilization of water resources for agriculture | do | February 1958. |
| S-25. The biology and control of insects and mites attacking forage crops. | do | May 1958. |
| S-26. The relationship of the soil microorganisms to the incidence of diseases in plants. | do | April 1956. |
| S-28. Requirements and utilization of selected nutrients in preadolescent children. | do | |
| S-29. Improving the production of early milk fat lambs | July 1955 | |
| S-30. Infectious diseases affecting reproduction in cattle and sheep | September 1955 | April 1957. |
| S-32. Quality and nutritive value of vegetables as influenced by cultural conditions and postharvest practices. | July 1956 | |
| S-34. Respiratory diseases of fowls | September 1955 | March 1959. |
| S-35. Effects of soil microorganisms on soil properties and plant growth. | July 1956 | April 1957. |
| S-36. Biology and control of certain insects affecting forest trees and unfinished forest products in the South. | do | |
| S-37. Basic factors involved in the control of the pink bollworm | do | March 1959. |
| S-39. Animal and plant variations affecting the induction of pasture bloat. | July 1958 | |
| S-41. Development and evaluation of breeding techniques in chickens. | do | |
| S-42. An economic appraisal of farming adjustment opportunities in the southern region to meet changing conditions. | do | |
| S-43. Mechanism by which the boll weevil and other insects become resistant to insecticides. | do | |
| S-44. Factors in the adjustment of families and individuals in low-income rural areas. | do | |
| S-45. Nutritional evaluation of forage crops | July 1959 | |
| S-46. Development of fundamental information and procedures for breeding forage species. | do | |
| S-47. Responses of forage crops to environmental factors | do | |
| S-48. Educational and vocational goals of rural youth in the South | do | |

WESTERN REGION

| Regional project | Date begun | Date revised | Date closed |
|---|---|---|---|
| CLOSED PROJECTS | | | |
| WM-1. Maintaining and expanding the market for dairy products. | July 1947 | | June 1953. |
| WM-2. A study to determine means of delivering apples of improved quality to consumers at minimum costs. | do | | June 1948. |
| WM-2. Improving the marketing of western deciduous tree fruits. | July 1949 | June 1950 | June 1955. |
| WM-3. Marketing of peaches of improved quality. | July 1947 | | June 1950. |
| WM-4. Improving the marketing of livestock in the Western States. | do | September 1950; June 1953. | June 1955. |
| WM-5. Improving the marketing of western wool. | do | March 1952 | Do. |
| WM-6. A study of new methods of grading, packaging, and shipping to improve and maintain the quality of potatoes and to determine consumer acceptance of same. | do | | June 1950. |
| WM-7. Marketing poultry and poultry products, including turkeys. | do | June 1949; June 1952. | June 1954. |
| WM-8. Desert grapefruit marketing routes in relation to growers' returns. | June 1948 | | June 1950. |
| WM-9. Agricultural trade barriers in the Western States. | July 1950 | | June 1954. |
| WM-12. Marketing of northwestern forage and pasture seeds. | July 1953 | November 1953 | June 1955. |
| WM-13. Wheat prices and price policies in the western region. | do | | June 1959. |
| WM-14. Marketing western head lettuce with special reference to packaging and cooling methods and to the possibilities of market control programs. | do | | June 1957. |
| WM-15. Needed adjustments in the dairy industry of the West. | do | | June 1958. |
| WM-18. Short-time adjustment to changes in supply-demand relationships for eggs. | July 1954 | June 1956 | Do. |
| WM-19. Economic and engineering studies of fruit and vegetable handling, packing and packaging. | do | | June 1959. |
| WM-21. Livestock market information, content and procedures. | November 1954 | | Do. |
| WM-22. Sheep and lamb marketing problems in specific Western States. | September 1954 | | June 1958. |
| WM-25. Case studies of the economic effects of new marketing technologies. | October 1955 | | Do. |
| WM-27. Economic costs of shrinkage and regain of western cattle and sheep. | July 1956 | | June 1959. |
| WM-31. Marketing practices and prices for various western nonindustrial logs and stumpage. | do | | Do. |
| WM-32. Market potential for Pima S-1 cotton | do | | Do. |
| W-2. Causes and prevention of breeding failure in dairy cattle. | July 1947 | June 1953 | June 1956. |
| W-3. Improvement of farm dairy structures and equipment. | do | | June 1952. |
| W-4. Nutritional status of population groups in selected areas of the West. | do | March 1950; June 1952. | June 1958. |
| W-8. The improvement of rural housing in the western region (amended June 1954). | do | do | June 1959. |
| W-9. Irrigation and soil management studies including drainage, salinity, and fertilization. | July 1948 | March 1950 | June 1954. |
| W-11. Physiological and ecological factors related to weed control. | July 1952 | | June 1959. |
| W-22. Behavior and effects of the virus complexes latent in stone fruit varieties and rootstocks. | July 1954 | | Do. |
| W-23. Physiological and environmental factors affecting the establishment and production of forage crops. | July 1953 | March 1954; April 1955; April 1956. | June 1957. |
| W-28. Irrigation water application and drainage | July 1954 | | June 1959. |
| W-29. Soil-water-plant relationships under irrigation. | do | | Do. |
| W-30. Measurement, evaluation, and modification of soil structure. | do | | Do. |
| W-36. Efficiency in the harvesting and use of seeded forage crops. | July 1955 | | Do. |

WESTERN REGION—Continued

| Regional project | Date begun | Date revised |
|---|---|---|
| ACTIVE PROJECTS | | |
| WM-16. Maintaining grain marketability by insect control in storage. | July 1954 | June 1959. |
| WM-17. Competitive position of the western region in marketing frozen fruits and vegetables. | do | April 1956; June 1959. |
| WM-20. The economics of marketing hay and feed in the West | do | May 1958. |
| WM-23. Improving the marketing of western wool | July 1955 | May 1957; May 1958. |
| WM-24. Market development for selected horticultural specialty crops. | do | May 1958. |
| WM-26. Factors which affect consumer purchase and utilization of fruits and vegetables. | July 1956 | |
| WM-33. Improving the preservation and marketability of beef and lamb. | July 1958 | |
| WM-35. Facilitating the marketing of seed through improved testing procedures. | September 1957 | |
| WM-36. Effectiveness of selected means of increasing the consumption of dairy products. | July 1957 | |
| WM-37. Economics of transportation of livestock and meats in the western region. | July 1958 | |
| WM-38. Impacts of changing marketing techniques and structure on the organization and management of cooperatives. | do | |
| WM-39. An economic analysis of alternative marketing methods of cattle and sheep in the West. | July 1959 | |
| WM-40. Procurement policies and practices of large-scale food retailers. | do | |
| WM-41. Influence of recent technological developments on the marketing and market acceptance of western cotton. | do | |
| WM-42. The market structure and marketing practices associated with initial processors of timber obtained from small woodlands. | do | |
| W-1. The improvement of beef cattle through the application of breeding methods. | July 1947 | April 1956. |
| W-5. Avian pleuropneumonia-like organisms and associated respiratory infections. | November 1953 | March 1954; March 1959. |
| W-6. The introduction, multiplication, preservation, and determination of potential value of new plants for industrial and other purposes. | July 1947 | June 1948; June 1953. |
| W-7. Genetic and environmental factors affecting reproductive performance in turkeys. | do | April 1956; March 1959. |
| W-12. Host-pathogen relationships in bean improvement | July 1954 | June 1959. |
| W-16. Economics of range resource use | July 1953 | Do. |
| W-24. Improvement of mechanized production and harvesting of irrigated cotton in the arid and semiarid West. | do | May 1957. |
| W-25. Ecology and improvement of brush infested range lands | do | March 1954. |
| W-27. Vibriosis in sheep | July 1954 | May 1957. |
| W-31. The conservation and improved use of nitrogen in western soils. Amended April 1956. | July 1955 | May 1958. |
| W-32. Basic hydrologic factors in precipitation disposal related to water conservation. | do | |
| W-33. The economics of alternative methods of water application | do | |
| W-34. Range livestock nutrition | do | |
| W-35. Nematode parasites of ruminants | do | November 1958. |
| W-37. Biology, ecology, and control of rangeland grasshoppers. Corrected June 1957. | do | April 1956. |
| W-38. Nature of the influence of crop residues on fungus-induced root diseases. | do | |
| W-39. Effects of fluorine (as fluorides) on plants, animals, and soils | do | June 1956. |
| W-40. Breeding forage plants with superior performance, nutritive value, and seed yielding capacity. | do | May 1956. |
| W-41. Urinary calculi (urolithiasis) of beef cattle | July 1956 | |
| W-42. Economic analysis of ground water laws in the Western States. | do | |
| W-43. Leguminous forage crop insect pests | do | |
| W-44. The role of diet in cholesterol metabolism | do | |
| W-45. Pesticide residues, their nature and determination in relation to the production and marketability of agricultural products. Amended July 1956. | do | |
| W-46. The effects of environmental stresses on range cattle and sheep production. | do | |
| W-47. Developmental aspects of root growth in forage plants | November 1956 | November 1957. |
| W-48. Association of climatic elements with crop production and plant development. | November 1957 | |
| W-49. Physiological causes of breeding failure in cattle | July 1956 | |
| W-50. Atmospheric stresses on the performance of laying chickens | July 1958 | |
| W-51. Drainage design for irrigation agriculture | July 1959 | |
| W-52. Biochemistry of herbicidal action | do | |
| W-54. Appraisal of opportunities for adjusting farming to prospective markets. | September 1957 | |
| W-56. The role of nematodes in root diseases of economic plants | July 1958 | |
| W-57. Amino acid utilization as affected by dietary factors | do | |

WESTERN REGION—Continued

| Regional project | Date begun | Date revised |
|---|---|---|
| ACTIVE PROJECTS—continued | | |
| W-58. Factors affecting seed and vegetative reproduction in forage crops. | July 1957 | |
| W-59. The impact of governmental price, income, and related policies on western agriculture. | July 1959 | |
| W-60. The effects of atmospheric conditions on specific cotton fabrics. | do | |
| W-61. Development of selection criteria for the genetic improvement of carcass merit of sheep. | November 1958 | |
| W-62. The cost of owning and operating farm power and machinery used for seedbed preparation and tillage. | July 1959 | |
| W-63. Effect of certain climatic and soil factors on the response of plants to herbicides. | do | |
| W-64. Virus diseases of deciduous fruit trees | do | |
| W-65. Hydraulics and efficiency of irrigation application | do | |
| W-66. Structural stability of soil | do | |
| W-67. Soil moisture-plant growth relationships | do | |
| W-68. Water movement in soil | do | |
| W-69. Influences of the sun on house comfort, durability, and economy. | do | |
| INTERREGIONAL | | |
| IRM-1. National policies for agricultural prices and income | July 1956 | |
| IR-1. Introduction, preservation, classification, distribution, and preliminary evaluation of wild and cultivated species of Solanum. | Sept. 1950 | March 1959. |
| IR-2. Obtaining and preserving virus-free deciduous tree fruit stocks. | July 1955 | April 1956. |

Mr. WHITTEN. Do you finish those projects in that particular region and then look around or, once you set up a regional project, do you finish line projects and keep it going year after year in some other phase of the commodity problem?

Dr. ELTING. Another table will perhaps answer that question. It shows that during the history of this program there have been more than 300 projects initiated, of that total number, 108 actually have been completed and taken off the record.

Others have been added as funds have made this possible. So there is a constant review and completion of regional projects in the same manner that happens under other funds.

(The table referred to follows:)

*Number of regional and interregional research projects by fiscal years*

| Fiscal year | Begun | Active during year | Closed | Active June 30 |
|---|---|---|---|---|
| 1948 | 52 | 52 | 1 | 51 |
| 1949 | 3 | 54 | 0 | 54 |
| 1950 | 16 | 70 | 4 | 66 |
| 1951 | 5 | 71 | 3 | 68 |
| 1952 | 1 | 69 | 4 | 65 |
| 1953 | 10 | 75 | 17 | 58 |
| 1954 | 27 | 85 | 11 | 74 |
| 1955 | 47 | 121 | 10 | 111 |
| 1956 | 35 | 146 | 7 | 139 |
| 1957 | 40 | 179 | 6 | 173 |
| 1958 | 24 | 197 | 19 | 178 |
| 1959 | 20 | 198 | 26 | 172 |
| 1960 | 26 | 198 | | |

Mr. WHITTEN. I'd be glad to have that in the record. I don't know that that exactly answers my question. It certainly throws light on it but my point was that, where a given number of States

have one regional project completed, do the same States continue to join together through this regional approach in other related problems in the same general field?

Dr. ELTING. As each new regional project is developed, there is exploration of those States that are best equipped to make a contribution to that project. There will be a realinement in this process. In other words, no State has a vested interest in a certain percentage of these funds.

So with each new regional project there will be some realinement of the States which participated in it, always keeping in mind the admonition that this work shall be done in the areas where the States are best equipped and prepared to make a contribution.

Projects are developed through the mechanism of technical committees with representatives from the several States concerned. Very often all the States in a region may have representation on a technical committee to engage in the planning, to express their interest, but out of perhaps a dozen States represented on the technical committee the work may be all concentrated in two or four States.

Mr. WHITTEN. My question for the record was just trying to seek information. The States with the common problem will continue to grow the same commodity and if they prove they can work harmoniously and well through this means, it would stand to reason that we would like to continue.

I would just like to try to find out the sequence of events.

Dr. ELTING. I would be glad to insert in the record a statement which gives the procedure for developing a regional research project.

(The statement referred to follows:)

REGIONAL RESEARCH PROJECT DEVELOPMENT AND PROCEDURE

Regional research projects are initiated by the same processes used in other types of research. Needs common to several States are recognized by groups of researchers, Federal agencies, industry, Congress, and advisory groups. These needs are presented to the associations of State station directors, usually through their regional research committees, in the form of preliminary proposals. If a proposal for research is accepted one of the station directors is designated as administrative adviser, with the responsibility of organizing a technical committee of subject matter specialists from the State stations and Federal agencies. This committee then develops a project outline, sets up responsibilities of participating States, and recommends a budget allocation from the regional research fund. Allocations are based on availability of personnel and facilities and are made to stations which can make the most effective use of them. Regional project outlines are reviewed by the Committee of Nine and recommended by this committee for approval. Actual certification of regional research funds is contingent upon submission of a contributing project outline which is approved by the State Experiment Stations Division of the Agricultural Research Service.

Regional projects are normally approved for a period deemed sufficient to complete the work planned. However, if it is necessary to extend the duration of projects or to revise them in light of current findings, they are subjected to the same critical review and evaluation accorded a new project.

The technical committee is the key unit in regional research. Its purpose is to accelerate agricultural research progress by pooling ideas, manpower, facilities, and funds, and by avoiding duplication of effort. The committees meet regularly to review progress and lay plans for accomplishing the objectives of the regional project. Each year the Committee of Nine conducts a review of the projects to evaluate progress and to develop recommendations for revisions, coordination, redirection, strengthening, and other modifications.

FUNDS GRANTED DIRECTLY TO STATES

Mr. WHITTEN. Now with regard to the 75 percent, this increase—if we can find ways to do it—would be divided under a formula among the various States, would it not?

Dr. ELTING. Yes, sir; and one of the tables, table B, that was placed in the record, Mr. Chairman, shows what that distribution would be.

Mr. WHITTEN. Now in that relationship again, the use of these funds in their institution is left up to them. Would you approve it if it went to increased salaries or would you have to approve it if it went to increasing projects? I mean you have within your power, as I recall it, the right to prevent duplication of projects but you don't have the right to direct projects. In other words, that originates with the institution, does it not?

Dr. ELTING. The stations essentially initiate the work which they propose to be supported under this fund. Each project proposal is subject to advance review, coordination and approval before the States actually may spend the money in support of that project.

Mr. WHITTEN. So you do have what you might call a veto power?

Dr. ELTING. That is right.

Mr. WHITTEN. Of course, your relationship is such that it doesn't reach that stage, I wouldn't think; would it?

Dr. ELTING. At times it has. The more normal picture is an exchange or perhaps several exchanges of correspondence to better coordinate their efforts and to familiarize them with other work which may closely approach or duplicate what they are proposing to do. In due process, the projects are often revamped to take full account of other related work but it is not infrequent that projects are rejected.

ESTIMATES OF NEEDS FROM STATE EXPERIMENT STATIONS

Mr. WHITTEN. Are the particular projects that have already been submitted to you that you haven't had funds for, is that the way this $1 million was built up or is this a request to the Secretary? Do you know how this figure was arrived at? Is there any breakdown as to the particular line projects that would be done, just what use would be made or is there something that is yet undetermined that would have to be determined by the experiment station?

Dr. ELTING. Each year as a part of the activities of the legislative subcommittee of the experiment station directors, they canvass experiment station directors, and obtain from them statements of lines of work that they consider most essential in expanding or initiating as additional funds become available.

This poses a problem as to how to solicit States to present such estimates in order that they not be entirely out of line with any money that they might obtain from this source. They are usually provided a table of the amount of increase that they would receive under the formula at certain assumed levels of increase—$1—$3—$5 million increase and they build estimates within the framework of the money that they would actually receive on an assumed level of increase and under the formula.

That prevents any State from making estimates that would be far beyond anything that they could have hoped to obtain. I realize that

that puts considerable limitation on many of the States but that is the best pattern we have developed for receiving estimates.

Now more specifically as to what the States would do with this $1 million increase, I have a short statement that I would be glad to read for the record.

Mr. WHITTEN. We shall be glad to have you present your statement.

USE OF REQUESTED BUDGET INCREASE

Dr. ELTING. Since the release of the President's budget estimates, most experiment station directors have filed statements indicating rather specific plans for applying their formula portion of such an increase.

Approximately one-half of the States indicate that the pressure of increasing costs for conducting research is so acute that it is their judgment that the increase could be applied most effectively by strengthening the going program of work without plans for adding new projects.

In addition, about 10 other States indicate that a portion of their increase would be devoted to meeting additional costs, particularly salary adjustment.

In total, about 57 percent of the increase subject to formula distribution is committed to this type of general strengthening of the existing program. In proposing this type of use for the increase many directors commented that their programs are under constant appraisal to see that the funds are applied to the most urgent problem areas so that plans for strengthening the current program does not mean there is no shifting of emphasis to more important areas of research.

In the words of one director, "We realize that new work is possible even on a status quo budget by terminating some work of lower priority which makes possible the initiation or enhancing of important work in other lines."

INCREASED SALARY COSTS

The fact that salaries of experiment station scientists have on the average increased by nearly 20 percent over the last 3 years and that over this same period the Federal grant funds have increased by less than 7 percent indicates a primary reason why there is pressure to use an increase of this magnitude for a general strengthening of current programs.

PROGRAM AREAS TO BE STRENGTHENED

Many of the States have, in addition, indicated plans for the initiation of new projects in several areas. About a fourth of the States indicate specific plans for strengthening their marketing and utilization research to the extent of over 9 percent.

While this is less than the 20 percent marketing requirement, the fact that the States currently are spending about 23½ percent of the fund subject to this marketing requirement for marketing research indicates that there will still be a margin so far as the overall requirement is concerned. Furthermore, a substantial portion of the funds used for general strengthening of program will fall in the marketing research area.

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About a fourth of the States have indicated, specifically, plans for expanding research on farm forestry which would commit over 15 percent of the increase. This figure substantiates the general expression of intent on the part of most of the station directors to strengthen their forestry research program as rapidly as possible.

A fourth of the States have also indicated specific plans for strengthening research in areas relating to more effective conservation and use of soil and water, committing over 10 percent of the increase to this area.

The remaining funds, representing approximately 8 percent of the increase, will be applied to new basic research in certain areas including new research in pesticide chemicals, animal diseases, plant physiology, and animal and plant genetics.

Twenty-five percent of the increase is by law not subject to formula distribution and is to be used for the support of cooperative regional projects. It is planned that the major part of the $250,000 increase in regional research would be used to give better support to existing projects. A number of these regional projects are now receiving quite inadequate allotments that should be augmented.

A few regional projects have been projected and probably would be implemented. These include projects on the economic and legal factors in providing use and managing water resources in agriculture; water movement in soils; the economics of expanding markets for agricultural products through promotion and new methods of utilization which is a proposal from the western region; and from the Northeast, a project on the economics of farm use of irrigation water.

That, in brief, Mr. Chairman, is an analysis of the rather specific plans which the directors have indicated and which presumably would be reflected in the new programs of work which they would submit to use for the new fiscal year, beginning next July 1.

Mr. WHITTEN. I personally recognize many problems that existed in those areas. I am not too familiar with the amount of work that has gone through the experiment stations. I am familiar with many of those fields and other research activities of the Department which are very interesting and are working at the present time.

In fact, rather large increases are requested in the budget in several of those areas.

COMPARISON OF BUDGET INCREASE WITH NEED FOR SPECIAL FUND FOR LABOR

Dr. Elting, it seems to me that in this overall budget, this $1 million increase comes in the same bill where the budget is taking away the $1 million that this committee sponsored last year for the hiring of labor and temporary workers at various research centers throughout the United States.

Dr. Shaw made a very good case to us last year, and presented very strong evidence of the fact that frequently research results were held back because of the constantly cheapening dollar in an effort to hold on to the scientific personnel. Frequently the laborer and the subprofessional help was not available and the scientific man had to spend that much of his time doing common labor when he could have better earned it or brought about more results if he had been in his own field.

This committee provided $1 million for Dr. Shaw's use in trying to meet that problem in cases as they arose. The testimony this year shows to me, at least, that the use of this fund has brought a whole lot of benefit.

Now, that $1 million has been eliminated in this budget. Now, if we can find a million dollars, our problems would be greatly improved and we would come close to solving this one—you haven't got a million dollars that you could put back in that other activity, have you?

Dr. ELTING. That is beyond my power I assure you. I would only point out that the experiment stations are subject to the same squeeze on labor and subprofessional help that the Department is and I think that the record will show, Dr. Shaw, that some of this million dollars was used in the cooperative program which existed between the Department and the experiment stations.

It's true that there is a rather high degree of interrelationship and to some extent, interdependence of the two areas we're discussing.

Mr. WHITTEN. Dr. Elting, you've made a fine presentation. I was just trying to get a little sympathy out of you for our position.

Mr. Natcher.

Mr. NATCHER. Mr. Chairman, I would like to join with you in thanking Dr. Elting and the members of his staff for the fine work that they are doing throughout the United States.

Mr. SANTANGELO. Thank you.

Mr. WHITTEN. Mr. Horan.

### FORMULA FOR GRANT FUNDS TO STATES

Mr. HORAN. What is the formula of the Hatch Act? I notice that several States get more than $700,000 out of it. Alabama, Georgia, Kentucky, Mississippi, North Carolina gets the most, Tennessee and Texas.

They get more than California which doesn't get $700,000; Illinois, Michigan, and New York. I think those four States don't get $700,000. There must be a formula.

Dr. ELTING. Yes, sir. There is a very definite formula, Mr. Horan, and the formula, of course, has a long history because it involves not only the formula which exists now in the amended Hatch Act but that distribution takes into account the whole history of the Federal grants from the beginning and several formulas which have entered into this picture from time to time.

You will recall that up to 1935, all States received an equal amount of money which at that time amounted to $90,000 per State. The formula idea was first introduced with the Bankhead-Jones Act in 1935 and that was based on the relative rural population of the several States.

The amendment to the Bankhead-Jones Act of 1946 provided a more complex formula and it has been carried over into the consolidated or amended Hatch Act under which we now operate which takes into account three factors, and those, incidentally, are set forth on 138 of your notes, Mr. Horan. It provides 20 percent of the total in equal amount to each State, 52 percent on the population basis, one-half in relation to the rural population and one-half in rela-

tion to farm population, then 25 percent is set aside as the regional research fund which we have just discussed and 3 percent is set aside for administration.

So it is a rather complex breakdown. You will recall further that in the Consolidation Act of 1955, funds received by each State during that fiscal year became a fixed base and that the formula applies now only to increments which are appropriated—that have been appropriated or will be appropriated since 1955.

Now many States, of course, receive comparatively small allotments of funds under the formula. This would be particularly true of the New England States and the Intermountain States. Those States, of course, with heavy rural and farm populations do get a higher portion.

I believe there are two States only that are now exceeding $1 million in the total and that would be the States of Texas and North Carolina.

Mr. HORAN. Well the table doesn't have any of them getting over a million.

Well, of course, this is non-Federal funds.

Dr. ELTING. No. You will notice there, Mr. Horan, that there is undistributed at the bottom of that column, the regional research funds. When you take into account that those funds are also made available to the States for the support of specific projects in the regional research program, then it does bring the total of two States to over $1 million.

SALARY COSTS

Mr. HORAN. I'm not begrudging these payments but it was a little confusing to me.

We had quite a demand from some of the States for not paying their county agents very well and we had an appeal from some of the States based upon the need to pay higher salaries as I understood it last year.

This committee took the position that while salaries should be uniform, it was up to the States to determine and to pay salaries and your testimony today, you've used the need for higher salaries as part of your justification.

Now, don't you feel that we are a little bit on unsafe ground when we start using Federal funds on a salary level basis?

Dr. ELTING. Well, I can only say, Mr. Horan, that salaries, cost of personnel, represent the major cost of conducting research.

Mr. HORAN. I'm aware of that but this gets into a field we're discussing now in terms of teacher's salaries and there are various opinions. A great many of us have the feeling that there is a local and a State responsibility there that should be kept separate from what might be considered the Federal responsibility.

I just question the propriety of justifying these increases on the basis of what various States may or may not pay as salary levels.

We put a table or a chart in last year showing the average salaries paid to county agents and there is quite a variation.

Dr. ELTING. We have a table also, Mr. Chairman, that shows the average salaries and the range of salaries which are paid to research workers in the various States and may I emphasize that there is no dictation or pressure whatever on the individual States so far as the salary level which they will pay.

The very fact that there is almost a 100-percent range in the level of salaries paid between the highest and the lowest State experiment stations today certainly indicates the States have full authority to determine their salary levels and the employees are in every sense State employees subject to the regulations of the State institution.

So, I would want to make it clear that we have justified this increase on the basis that increasing salary costs have thereby greatly increased the cost of conducting research and that in the absence of any increases here, there will be a process of attribution on the total volume of research that can be supported.

I wouldn't want it to appear in any other light than this.

## SOIL AND WATER CONSERVATION RESEARCH

Mr. HORAN. You are quite general in your justification on page 132 of the justification on this soil and water use and the conservation research.

Could you be a little bit more specific in what you are doing there?

Dr. ELTING. It's difficult to be specific in reflecting the interest of 51 institutions. About 10 percent of the total money expended by the experiment stations, which last year approximated $135 million, is going in the area of soil and water research.

It simply means that there are still areas in this overall problem that need to be and would hereby be strengthened. The facts are that we do not have, at this stage, specific plans as to the exact nature of research that would be conducted.

That would be made available to us as specific work plans are submitted. So I regret to say that we have to speak in rather general terms at this stage. The following statement illustrates the current state of planning:

(The statement referred to is as follows:)

### NEW AND EXPANDED RESEARCH IN SOIL AND WATER AND WATERSHED PROTECTION AT THE STATE STATIONS

The need for increased research in soil and water conservation is well illustrated by specific reference to the States of the Pacific Northwest. Oregon, for example, has indicated its need to expand soil and water research in 11 separately definable areas, ranging from soil management to hydrology. Idaho has indicated the need to expand or initiate research in three such areas and Washington in five. The scope of needed research is well presented by Washington in its proposals to use increased funds for new or increased research efforts in:—

1. Development of equipment and procedure to conserve moisture and minimize erosion in wheat growing areas.
2. Field measurement of physical properties of Washington soils.
3. Physical and chemical phenomena of aggregate stabilization.
4. Development of improved design criteria for surface application of irrigation water.
5. Development of improved drainage design theory and procedures.
6. Economics of soil conservation.

The State stations have recognized the need for expanding research in the field of watershed management by planning to channel some of the new funds requested into this specific field. For example, a new regional project is proposed in the north central region on "Hydrological Characterization of small watersheds." Similarly, in the western region a project on "Disposition of Precipitation as Influenced by Vegetative-Site Characteristics of the Ponderosa Pine Zone" is proposed. Increased funds, if available, will also be assigned to a western regional project "Basic Hydrologic Factors in Precipitation Disposal

Related to Water Conservation." The information developed by these regional projects and by related Federal-grant and State supported projects point the way to a better watershed protection program.

Mr. HORAN. Well, I'll be specific then. This committee mentioned in its report some 2 or 3 years ago that we would look with favor upon the establishment of soil and water laboratories in the Pacific Northwest and the humid areas of Kentucky.

A study was made in our area at least and the report indicated that objective would be achieved by strengthening the existing institutions in Idaho, Oregon, Washington, and Montana.

Dr. ELTING. The record will show that there is work of this character in progress and I believe the figure was 23 separate locations in that area mentioned.

Now much of that is around the substations operated by the State experiment stations.

Mr. HORAN. As I recall it wasn't that high. I believe it was Boise, Caldwell, Pendleton, (Pullman) and Bozeman.

Dr. ELTING. Well, I would certainly want to correct my figure.

Mr. HORAN. I don't think it was 23.

Dr. SHAW. Caldwell was added to those and——

Dr. KNOBLAUCH. Puyallup.

Mr. HORAN. Now, of course, you are getting out of the area that we are talking about Puyallup is not in an arid area, the semiarid area and certainly the establishment of the field laboratory in Kentucky which is quite humid and my question was that this general justification here, I just wanted to know some of the specifics.

Mr. Chairman, could he supply that, a more specific answer for the record?

Mr. WHITTEN. Certainly.

Dr. ELTING. I'd be pleased to do that.

(The information requested follows:)

LOCATIONS WHERE SOIL AND WATER RESEARCH IS CONDUCTED BY STATE AGRICULTURAL EXPERIMENT STATIONS IN THE SEMIARID PACIFIC NORTHWEST

The record indicates that the major share of soil and water research in the semiarid portion of the Pacific Northwest is being conducted at some six or eight State agricultural experiment stations with additional research in this same field being conducted at a number of other locations. Much of the work is carried out cooperatively between the States and the Department.

Soil and water research is being conducted at: Aberdeen, Boise, Caldwell, Moscow, Tetonia (St. Anthony) and Twin Falls (Kimberly), Idaho; Bozeman, Huntley, Kalispell, and Sidney, Mont.; Malheur (Ontario), Pendleton, Sherman (Moro), Squaw-Butte (Burns) and Umatilla (Hermiston), Oreg.; Lind, Prosser, Pullman, and Wenatchee, Wash.

Mr. HORAN. That's all.

Mr. WHITTEN. The committee will stand in recess until tomorrow.

Dr. ELTING. Thank you, Mr. Chairman.

FRIDAY, FEBRUARY 19, 1960.

# FARMER COOPERATIVE SERVICE

## WITNESSES

ERVIN L. PETERSON, ASSISTANT SECRETARY OF AGRICULTURE
JOSEPH G. KNAPP, ADMINISTRATOR, FARMER COOPERATIVE SERVICE
KELSEY B. GARDNER, DIRECTOR, MANAGEMENT SERVICES DIVISION, FARMER COOPERATIVE SERVICE
J. KENNETH SAMUELS, DIRECTOR, MARKETING DIVISION, FARMER COOPERATIVE SERVICE
HAROLD D. WALKER, DIRECTOR, ADMINISTRATIVE MANAGEMENT DIVISION, FARMER COOPERATIVE SERVICE
CHARLES L. GRANT, DIRECTOR OF FINANCE AND BUDGET OFFICER, DEPARTMENT OF AGRICULTURE

## SALARIES AND EXPENSES

*Program and financing*

| | 1959 actual | 1960 estimate | 1961 estimate |
|---|---|---|---|
| Program by activities: | | | |
| 1. Research and technical assistance for farmer cooperatives (total program costs [1]) | $613,829 | $615,800 | $644,650 |
| 2. Relation of costs to obligations: Costs financed from obligations of other years, net (−) | −1,976 | | |
| Total program (obligations) | 611,853 | 615,800 | 644,650 |
| Financing: | | | |
| 1959 appropriation available in 1958 | 2,574 | | |
| Unobligated balance no longer available | 3,473 | | |
| New obligational authority | 617,900 | 615,800 | 644,650 |
| New obligational authority: | | | |
| Appropriation | 578,000 | 615,800 | 644,650 |
| Transferred from "Conservation reserve program," Commodity Stabilization Service (73 Stat. 51) | 39,900 | | |
| Appropriation (adjusted) | 617,900 | 615,800 | 644,650 |

[1] Includes capital outlay as follows: June 30, 1959, $4,736; 1960, $3,600; 1961, $5,100.

*Object classification*

| | 1959 actual | 1960 estimate | 1961 estimate |
|---|---|---|---|
| Total number of permanent positions | 75 | 73 | 73 |
| Average number of all employees | 68 | 67 | 70 |
| Number of employees at end of year | 65 | 67 | 70 |
| Average GS grade and salary | 8.5 $6,806 | 8.7 $6,979 | 8.7 $7,033 |
| 01 Personal services: | | | |
| Permanent positions | $461,776 | $473,132 | $489,410 |
| Other personal services | 2,269 | 3,668 | 1,890 |
| Total personal services | 464,045 | 476,800 | 491,300 |
| 02 Travel | 39,085 | 36,200 | 38,700 |
| 03 Transportation of things | 674 | 100 | 100 |
| 04 Communication services | 15,823 | 15,100 | 15,700 |
| 06 Printing and reproduction | 46,308 | 38,000 | 41,500 |
| 07 Other contractual services | 2,418 | 2,400 | 6,050 |
| Services performed by other agencies | 7,161 | 8,000 | 8,900 |
| 08 Supplies and materials | 3,554 | 3,700 | 3,900 |
| 09 Equipment | 4,823 | 3,800 | 5,300 |
| 11 Grants, subsidies, and contributions | 29,959 | 31,000 | 31,900 |
| 13 Refunds, awards, and indemnities | 536 | 600 | 600 |
| 15 Taxes and assessments | 41 | 100 | 100 |
| 1959 program obligated in 1958 | −2,574 | | |
| Total obligations | 611,853 | 615,800 | 644,650 |

## Justification of the Estimate

Mr. Whitten. We shall now consider the Farmer Cooperative Service. Pages 190 and 191 of the justifications will be included in the record at this point.

(Pages referred to are as follows:)

PURPOSE STATEMENT

The Farmer Cooperative Service was established following the enactment of the Farm Credit Act of 1953 (Public Law 202, Aug. 6, 1953), which transferred the research and technical assistance work for farmers' marketing, purchasing and service cooperatives, under the Cooperative Marketing Act of 1926 from the Farm Credit Administration to the Secretary of Agriculture.

The Service conducts research, advisory, and educational work with cooperatives on problems of organization, financing, management policies, merchandising, costs, efficiency, and membership to help farmers who are members of such organizations improve the operations of their businesses. It cooperates with the Extension Service, land-grant colleges, banks for cooperatives, State departments of agriculture, and other agencies to bring about better understanding and application of sound cooperative principles and practices. It also advises other Federal agencies on problems relating to agricultural cooperatives.

The Service carries on its work through three program divisions: Marketing, Purchasing, and Management Services. On November 30, 1959, the Service had 110 employees, 109 of whom were full-time and 1 part-time, all stationed in Washington, D.C.

| | |
|---|---|
| Appropriated 1960 | $615,800 |
| Budget estimate 1961 | 644,650 |

*Salaries and expenses*

| | |
|---|---|
| Appropriation Act, 1960 and base for 1961 | $615,800 |
| Budget estimate, 1961 | 644,650 |
| Increase | +28,850 |

SUMMARY OF INCREASES, 1961

| | |
|---|---|
| To strengthen research and technical assistance for farmer cooperatives | +25,150 |
| For employee health benefit costs pursuant to Public Law 86-382 | +3,700 |

*Project statement*

| Project | 1959 | 1960 (estimated) | Increase | | 1961 (estimated) |
|---|---|---|---|---|---|
| | | | Health benefit costs (Public Law 86-382) | Other | |
| 1. Research and technical assistance for farmer cooperatives [1] | $614,427 | $615,800 | +$3,700 | +$25,150 | $644,650 |
| Unobligated balance | 3,473 | | | | |
| Total employee health benefit costs (Public Law 86-382) | | | (+3,705) | (+150) | (+3,855) |
| Total available or estimate | [2] 617,900 | 615,800 | +3,700 | +25,150 | 644,650 |
| Transferred from "Conservation reserve program, Commodity Stabilization Service" | −39,900 | | | | |
| Total appropriation or estimate | 578,000 | | | | |

[1] Represents obligations. Applied costs for 1959 are $613,829. The difference of $598 reflects, primarily, the excess of printing and reproduction orders placed in 1959 over those received in that year.
[2] Includes $2,574 obligated in 1958 under the advance procurement authorization (Public Law 85-386).

Mr. WHITTEN. Mr. Peterson, I believe this comes under your overall jurisdiction. We will be glad to have your general statement, if you care to make one.

GENERAL STATEMENT

Mr. PETERSON. Thank you.

Mr. Chairman, and members of the committee, we are glad to discuss with you the work of the Farmer Cooperative Service.

The service provides research, advisory, and educational assistance to farmer marketing, purchasing and service cooperatives. The farmer cooperative is the business entity created by farmers to act as their business agent in the sale of their products and in acquiring the tools, materials, and services needed to operate their farm enterprises. The ability of the cooperative to serve its farmer members depends upon its efficiency as a business and its effectiveness as a cooperative association.

Stronger and more efficient cooperatives increase farmer bargaining power, reduce their marketing costs, provide better market acceptance for farmer members' products, strengthen their joint purchasing power, influence the quality of essential supplies and services provided, and reduce transportation and other costs. The work of the Farmer Cooperative Service is designed to help these farmer cooperatives develop into the kind of organizations required to successfully function as the business representatives of their farmer members.

The Farmer Cooperative Service also is actively participating in the rural development program. Information on the use of cooperatives in this program has been prepared and distributed to rural development committees, farmer cooperatives, extension services, and others interested in improving opportunities for people in the rural communities where the rural development program is operative.

There is widespread interest today in bargaining cooperatives as a means to improve farmer bargaining power. Growers use bargaining cooperatives to strengthen their market position by negotiating as a group for price and other contract terms involved in the sale of

their farm commodities. Increased use of such cooperatives is a relatively new development in the marketing of fruits and vegetables for processing. This form of cooperative has been extensively used for many years by dairy farmers and sugar-beet producers. Since 1955 this type of cooperative for fruit and vegetable producers has grown greatly in importance.

The Farmer Cooperative Service is endeavoring to help these bargaining associations develop along sound cooperative lines.

The budget includes an increase of $25,150 to enable the Farmer Cooperative Service to more fully respond to requests for assistance being received from cooperative organizations, and $3,700 to cover the cost of the contribution to employees' health benefit plans pursuant to Public Law 86–382.

Mr. Knapp, Administrator of Farmer Cooperative Service, and members of his staff are present to give you more detailed information on the current program and operations of the Farmer Cooperative Service, as well as to discuss the 1961 program increase before your committee.

Mr. WHITTEN. Mr. Knapp, we will be glad to have any general statement you might want to make first.

STATEMENT OF THE ADMINISTRATOR

Mr. KNAPP. Mr. Chairman, I appreciate this opportunity to report on our work in Farmer Cooperative Service.

Last year I reported statistical information for marketing and purchasing cooperatives for the 5 years from 1952–53 to 1956–57. I can now give you this information for 1957–58. The latest figures show a slight decrease in the number of associations and memberships and a small increase in value of business. The comparative figures of 1956–57 and 1957–58 are:

The number of associations in 1956–57 was 9,872 and in 1957–58 it was 9,716. This represents a decrease of 156 or a percent decrease of 1.6.

The number of memberships for 1956–57 was 7,671,730 as compared to 7,485,115 in 1957–58, a decrease of 186,615, or 2.4 percent. The net value of the business was $10,359,309,000 in 1956–57 as compared to $10,692,844,000 the next year. This was an increase of $333,535,000, or 3.2 percent.

The decrease in number of associations is explained largely by consolidation of existing associations and by increasing urbanization or other changes which have made continuance of many cooperatives impractical.

The decrease in memberships is largely explained by contraction in number of farms with continuing increase in size of farms.

Minnesota continued to lead all States in number of cooperatives and memberships with California cooperatives continuing to do the largest volume of total business.

One of the significant trends since 1950 has been the growth in cooperative business in the South. This is indicated in table 1 which shows number of associations, memberships, and volumes of business by geographic regions in 1950–51 and in 1957–58.

(The table referred to follows:)

TABLE 1.—*Number of associations, memberships, and net dollar volume of business of farmer cooperatives, by geographic regions, 1950–51 and 1957–58*

| Geographic region | Number of associations | | | Number of memberships (thousands) | | | Net volume [1] (million dollars) | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1950–51 | 1957–58 [2] | Percentage change | 1950–51 | 1957–58 [2] | Percentage change | 1950–51 | 1957–58 [2] | Percentage change |
| New England | 155 | 131 | −15.5 | 112 | 101 | −9.8 | 233 | 277 | +18.9 |
| Middle Atlantic | 623 | 664 | +6.6 | 362 | 375 | +3.6 | 780 | 1,031 | +32.2 |
| East North Central | 2,133 | 1,887 | −11.5 | 1,919 | 1,908 | −0.6 | 2,040 | 2,570 | +26.0 |
| West North Central | 3,956 | 3,757 | −5.0 | 2,076 | 2,297 | +10.6 | 2,163 | 2,663 | +23.1 |
| South Atlantic | 547 | 656 | +19.9 | 863 | 1,090 | +26.3 | 547 | 857 | +56.7 |
| East South Central | 387 | 430 | +11.1 | 729 | 622 | −14.7 | 297 | 380 | +27.9 |
| West South Central | 911 | 894 | −1.9 | 442 | 472 | +6.8 | 544 | 747 | +37.3 |
| Mountain | 552 | 539 | −2.4 | 296 | 308 | +4.1 | 474 | 549 | +15.8 |
| Pacific | 787 | 758 | −3.7 | 292 | 312 | +6.8 | 1,066 | 1,619 | +51.9 |
| United States | 10,051 | 9,716 | −3.3 | 7,091 | 7,485 | +5.6 | 8,144 | 10,693 | +31.3 |

[1] This figure is adjusted for duplication resulting from intercooperative business.
[2] Preliminary.

Mr. KNAPP. I would like you to have a look at the table, gentlemen. Take the first line here for New England. Then I will take one or two other regions.

Mr. WHITTEN. The table will be placed in the record, so you may handle it any way you wish.

Mr. KNAPP. I will take just a little time here but I would like to have you examine the table with me.

In New England there were 155 associations in 1950–51. The number decreased to 131 for the year 1957–58, a percentage decrease of 15.5. Memberships represented fell from 112,000 to 101,000, a percentage decrease of 9.8 percent. On the other hand, you will see that the net business volume which was $233 million in 1950–51, increased to $277 million, or an increase of 18.9 percent.

GROWTH IN THE SOUTH

Going to the South Atlantic area, the number of associations in this 8-year period increased from 547 to 656, or 19.9 percent. The number of memberships increased from 863,000 to 1,090,000, or 26.3 percent. The net volume of business increased from $547 million to $857 million, or 56.7 percent.

Mr. MARSHALL. To what do you attribute that increase?

Mr. KNAPP. I attribute it to educational work on the part of the colleges and other agencies, to the need for this kind of operation, to the fact that farmers are learning how to manage and operate these organizations, and to the economic conditions which have made it desirable for farmers to join these organizations. There has been good leadership. There has been helpful assistance rendered by the banks for cooperatives in providing a source of loan funds for carrying on cooperative operations. All of these things have had an effect.

Going back to table 1, let us look at the Pacific region. You see that there was a small decline in number of associations and a slight

increase in the number of memberships while the net volume of business registered 51.9 percent increase.

For the United States in full, you have the figures given by the table. I presume these tables will go in the record.

Mr. MARSHALL. We will have all of these tables placed in the record.

Mr. KNAPP. You will observe that the volume of business has increased in all areas. Although this increase was greatest in the South Atlantic, Pacific, and West South Central States, the greatest increase in number of associations and in memberships was in the South Atlantic region.

You will also be interested in the fact that the volume of cooperative marketing business showed about the same increase—nearly 30 percent—as the volume of cooperative farm supply business, although there was much variation in the change by regions. These figures are shown on table 2.

(The table referred to follows:)

TABLE 2.—*Volume of farm products marketed and farm production supplies handled by cooperatives, by geographic regions, 1950–51 and 1957–58*

[Thousand dollars]

| Geographic region | Net dollar volume [1] | | | | | |
|---|---|---|---|---|---|---|
| | Farm products marketed for patrons | | | Farm production supplies purchased for patrons | | |
| | 1950–51 | 1957–58 [2] | Percentage change | 1950–51 | 1957–58 [2] | Percentage change |
| New England | 151,363 | 203,767 | +34.6 | 81,269 | 71,895 | −11.5 |
| Middle Atlantic | 511,016 | 734,811 | +43.8 | 265,164 | 288,231 | +8.7 |
| East North Central | 1,628,299 | 2,014,895 | +23.7 | 397,335 | 526,622 | +32.5 |
| West North Central | 1,698,953 | 1,981,385 | +16.6 | 442,139 | 612,107 | +38.4 |
| South Atlantic | 393,503 | 622,576 | +58.2 | 147,667 | 212,384 | +43.8 |
| East South Central | 232,463 | 274,155 | +17.9 | 61,034 | 100,715 | +65.0 |
| West South Central | 446,508 | 611,491 | +36.9 | 69,870 | 88,318 | +26.4 |
| Mountain | 407,519 | 453,754 | +11.3 | 60,170 | 80,933 | +34.5 |
| Pacific | 889,977 | 1,364,100 | +53.3 | 159,960 | 204,064 | +27.6 |
| United States | 6,359,601 | 8,260,934 | +29.9 | 1,684,608 | 2,185,269 | +29.7 |

[1] Adjusted for duplication resulting from intercooperative business.
[2] Preliminary.

Mr. KNAPP. You may also be interested in increases in volume of business for major products marketed by cooperatives for the United States as a whole, as shown on Table 3.

(The table referred to follows:)

TABLE 3.—*Volume of major farm products marketed by cooperatives, 1950–51 and 1957–58*

[Thousand dollars]

| Farm products marketed for patrons | Net dollar volume [1] | | |
|---|---|---|---|
| | 1950–51 | 1957–58 [2] | Percentage change |
| Dairy products | 1,933,174 | 2,912,561 | +50.7 |
| Grain, soybeans and soybean products | 1,361,499 | 1,677,807 | +23.2 |
| Livestock and livestock products | 1,321,248 | 1,299,424 | −1.7 |
| Fruits and vegetables | 701,777 | 787,449 | +12.2 |
| Cotton and cotton products | 320,019 | 412,101 | +28.8 |
| Poultry products | 263,360 | 345,438 | +31.2 |

[1] Adjusted for duplication resulting from intercooperative business.
[2] Preliminary.

Mr. KNAPP. In this 8-year period, volume of dairy products business increased from $1,933,174,000 to $2,912,561,000, a percentage gain of 50.7. For grain, soybeans and soybean products, and other categories, the increase was 23.2 percent. For livestock and livestock products, there was a slight decrease, 1.7 percent. Fruits and vegetables volume increased 12.2 percent, cotton and cotton products increased 28.8 percent, and poultry products increased 31.2 percent.

There was an increase in volume of business for all commodities except livestock and livestock products. The decrease for livestock and livestock products is partially explained by a lower level of prices for livestock and livestock products in 1957–58 as compared with 1950–51.

The percentage changes in volume of business for the major production supplies handled by cooperatives are shown on Table 4.

(The table referred to is as follows:)

TABLE 4.—*Volume of major farm production supplies handled by cooperatives, 1950–51 and 1957–58*

[Thousand dollars]

| Farm production supplies purchased for patrons | Net dollar volume [1] | | |
|---|---|---|---|
| | 1950–51 | 1957–58 [2] | Percentage change |
| Feed | 694,347 | 808,355 | +16.4 |
| Petroleum products | 377,013 | 552,415 | +46.5 |
| Fertilizer | 156,138 | 283,322 | +81.5 |
| Seed | 90,451 | 95,833 | +6.0 |
| Farm machinery and equipment | 68,052 | 71,950 | +5.7 |

[1] Adjusted for duplication resulting from intercooperative business.
[2] Preliminary.

Mr. KNAPP. The expansion in fertilizer volume is partly explained by an increase of more than 25 percent in the use of fertilizer since 1950–51. Our records show that the percentage of fertilizer business done by cooperatives increased from about 15 percent in 1950–51 to 22 percent in 1957–58. Feed, seed, and so forth, total values of these products varied greatly. The amount of farm machinery and equip-

ment, which is fifth here in significance is about a tenth the volume of the feed.

Last year I indicated that farmers were taking energetic steps to strengthen their organizations to help them increase returns from marketing and reduce costs for essential farm supplies and services. This effort of farmers to help themselves through the operation of their own business organizations is continuing. This is manifest in a greater vitality in membership understanding, interest, and support.

The examples in the explanatory notes before you illustrate how we are helping farmers build more effective cooperative associations. I would like to supplement these examples with other information to give you a more complete understanding of certain phases of our work.

### BARGAINING COOPERATIVES

During recent years farmers have been endeavoring to increase their incomes through the formation and operation of cooperative bargaining associations. These cooperatives negotiate price and terms of sale with processors in behalf of their producer members. At the request of associations of this type we again arranged a national conference for fruit and vegetable bargaining associations to help them mutually meet their problems. The proceedings of this conference will provide useful information on this growing form of cooperative association. At the request of the bargaining associations we have prepared a circular and an educational leaflet which explain how such associations are formed and how they function.

We have done a considerable amount of work during the past year to help farmers strengthen their cooperative organizations through consolidation of existing associations. Many cooperatives, formed years ago, must be revamped in the light of changes in farming methods and markets if they are to meet the current needs of producers.

This has involved studies and consultations with farm groups to develop better coordinated marketing programs for eggs, dairy products, grain, livestock, fruits and vegetables, certified seed, and other farm products. One of these studies has been made in Alaska. We have also carried on work to help farmers better coordinate their farm supply and marketing operations.

### EFFICIENCY STRESSED

One of our continuing responsibilities is to help farmers improve the efficiency of their cooperatives. During the past year we have analyzed the comparative costs of cooperative cottonseed and soybean oil mills to develop guides for efficient operations. We have done similar work for grain marketing associations and for egg and poultry handling cooperatives.

We have examined also methods for better control of credit and inventory, improved use of transportation facilities, ways of meeting the needs of large producers, distribution of lime and liquid nitrogen fertilizers, use of mobile feed mills, and the operation of cooperative cow pools.

We have continued to work on the problem of helping farmers strengthen the management of their cooperatives. We are following up our report, "Employee Incentive Plans in Farmer Cooperatives,"

issued in June 1959, with a more detailed examination of successful plans of this type. We have also issued a report on the number of full-time employees of farmer cooperatives. This gives us information for the first time on the number of employees in various types of cooperatives.

Staff members during the year have participated in a number of workshops, bookkeeping schools and clinics designed to improve the effectiveness of cooperative management. These have been cosponsored with such agencies as State cooperative councils, American Institute of Cooperation, State extension services and banks for cooperatives and cooperatives themselves.

### MEMBERSHIP RELATIONS CLINICS

We are greatly pleased with the results accomplished by a series of regional membership relations clinics held during the past year in Richmond, Va.; Kansas City, Mo.; and Minneapolis, Minn. These meetings, cosponsored with the American Institute of Cooperation, brought together some 200 membership relations workers from 30 States. Primary attention was given to methods being used effectively to meet their specific member relations problems. Followup clinics are being planned this year, to be held in New York City; Omaha, Nebr.; Lansing, Mich.; and San Francisco, Calif.

We are now completing two studies to strengthen membership understanding in local associations. These studies indicate that there is no substitute for a continuing program of member education, and that programs must be planned to achieve continuous flow of information and communication between members, directors, employees and executive personnel.

During the past year we have continued our work to help farmers improve the performance of their boards of directors. We are now completing an intensive study of the effectiveness of boards of directors and of methods for improving their selection. The results of this study, based on information obtained from 100 managers and 700 directors in 100 regional cooperatives will provide much basic information that can be used to great advantage by all types of farmer cooperatives in improving the qualifications and performance of their boards of directors.

In order to keep our staff up to date on research and management techniques and achieve more efficient performance we carry on a continuing program of personnel development through special training courses and workshops. In this connection we use departmental and interdepartmental training facilities to the extent practicable. During the past year we have achieved better programing of travel to strengthen service and reduce costs. We are planning a staff workshop in March to improve the quality of our publications.

Our workload in fiscal year 1959, including our marketing research work done under advances from AMS, is indicated by the following data: we completed 101 studies, and we issued 50 new or revised publications. Our total distribution of old and new publications was over 196,000 of which about 64,000 went to county agents and vocational agriculture teachers for educational use. Our staff members participated in 261 cooperative meetings and conferences. They made 1,011 field contacts with cooperatives, 161 with land-grant colleges, and 66

with banks for cooperatives. In addition, 194 cooperative representatives consulted with our staff members in Washington.

Our budget estimate for 1961 provides an increase of $25,150 for a project to strengthen growers' bargaining cooperatives and $3,700 to cover the cost of the contribution to employee health benefit plans pursuant to Public Law 86–382. Through studies of selected bargaining associations we will determine the practices, method, and other conditions essential for efficient performance, and the kinds of economic information required for effective grower presentations in dealing with processors. We will also study management, financing, and other related problems of these associations.

The Service is receiving many requests for assistance from grower groups, Extension personnel, and others interested in forming or improving the procedures of bargaining associations. More basic information is required for the sound development of these associations.

We will be glad to answer any questions you may have regarding Farmer Cooperative Service.

Mr. MARSHALL. How many additional people do you propose for 1961?

Mr. WALKER. Two.

Mr. MARSHALL. In your justifications you mention some of the items you are going to improve by an increase of $25,150. Did you mention those by title?

Mr. KNAPP. We specified that this would largely be used to expand and improve our work with farmer bargaining cooperatives, an area that needs more attention than we have been able to give it.

COMMENDATIONS ON WORK

Mr. MARSHALL. It has been customary in the past for this committee to ask for some information from you concerning your work and examples of your work. Could you supply those for the record?

Mr. KNAPP. I will be very happy to. Do you wish to have me present any of them orally?

Mr. MARSHALL. Present it for the record. Whatever explanation you wish to make about them feel free to do that.

Mr. KNAPP. I will be glad to do that. We have resolutions in behalf of our program passed by the National Council of Farmer Cooperatives and the National Milk Producers Federation, and other cooperative organizations. I would like to put excerpts from these resolutions in the record.

We have received many comments from organizations that we have served. I would like to give some representative examples of that kind.

We have some fine letters from the banks for cooperatives. We work closely with them and I would like to put in a few letters which indicate this cordial relationship.

I might also mention that we make our services and our information available not only to cooperatives but also to other groups.

Recently I had a letter from an official in the export department of one of America's largest corporations which states the interest of this firm in farmer cooperatives as follows:

**In order that we might completely educate our fieldmen overseas, we would appreciate your forwarding to us a list of all available publications on farmer**

cooperatives that are available for distribution. In addition, any comments you might care to make on such an education program would be most welcome. Outside reference sources on farmer cooperatives would also interest us. We believe that any technical salesman in the agricultural field needs to become familiar with farmer co-ops and their function. Your help in supplying us with this information will, I am sure, enable us to put this idea across.

I have another letter that just came from one of the major meatpacking companies, expressing appreciation for work that we have done in trying to help livestock shippers reduce the bruise losses in the movement or transportation of animals. I would enjoy having an opportunity to place this in the record.

Mr. MARSHALL. Do that.

(Excerpts from this letter follow:)

Over the past few years we have had the privilege of working closely with your transportation economist, Dr. J. E. Rickenbacker, and assisting in research projects designed to increase livestock income through livestock conservation. This association was climaxed by the completion of four seasonal transportation surveys starting in April 1959 and ending with today's hog shipments. Such projects will prove of inestimable value to the livestock industry as a whole. Our company appreciated the opportunity to cooperate, and will be awaiting the final analysis and recommendations of Dr. Rickenbacker * * *. Want to assure you that our company will be happy to cooperate with the USDA Farmer Cooperative Service on any future projects handled and supervised by Joe E. Rickenbacker.

Mr. KNAPP. These letters indicate that our work is appreciated by more than farm groups.

(The material requested is as follows:)

EXCERPTS FROM RESOLUTIONS

"The National Council of Farmer Cooperatives again commends the Farmer Cooperative Service of the U.S. Department of Agriculture for its material assistance to farmers and their cooperatives. * * * We believe that seldom in the history of this country has the need been as great for farmers to employ self-help cooperation as a means of solving their economic problems and increasing their income. The National Council of Farmer Cooperatives reaffirms its strong belief that the solution of many of the serious problems confronting farmers today requires strengthening and developing farmer cooperatives by research, service, and educational assistance as is provided by Farmer Cooperative Service." Resolution of the National Council of Farmer Cooperatives, adopted January 13, 1960.

"The federation commends the continuing high standard of research and educational activity conducted by the Farmer Cooperative Service. Because the results of these projects have wide practical application among agricultural cooperatives, generally, and because their benefits accrue to farmers as a whole, the federation reiterates the strong belief that the Farmer Cooperative Service merits the same degree of budgetary support as that given the other research and education services of the Department of Agriculture." Resolution of the National Milk Producers Federation, adopted November 1959.

"Whereas cooperative marketing associations contribute to farmer prosperity, and whereas the development of good principles and practices in cooperative organization and management are essential to strong cooperative growth, and whereas the Farmer Cooperative Service of the U.S. Department of Agriculture has contributed effectively to the information available to farmers for organizing and managing their cooperatives: We now, therefore, commend the Farmer Cooperative Service for the assistances which have been provided, and we ask the Wisconsin representation in the Congress and the U.S. Secretary of Agriculture to give continued support in strengthening this cooperative service activity." Resolution of Wisconsin Council of Agriculture Cooperative, Madison, Wis., adopted at 1959 annual meeting.

"That the Administrator of the Farmer Cooperative Service be advised of our high regard and great appreciation for the work of the Farmer Cooperative

Service. We are in the midst of an effort to build a statewide cooperative for the distribution of eggs produced in California. We doubt if this move would have ever started, certainly it would not have progressed as it has, and undoubtedly it will take a lot more work by the Farmer Cooperative Service, if any enlarged program is achieved. Your poultry branch chief, Mr. John Scanlan, has furnished most of the inspiration and done most of the constructive work as we see it." Resolution of Council of Poultry Cooperatives, Alhambra, Calif., adopted January 1960.

COMMENTS FROM COOPERATIVES SERVED

"* * * The advice and guidance we have received from Gib Randell and his boys has helped us tremendously in starting off on the kind of a program which we feel is the best program of livestock marketing that we have ever had in the State of Wisconsin."—C. F. Claflin, manager, Equity Cooperative Livestock Sales Association, Milwaukee, Wis. (December 16, 1959).

"I would like to express the appreciation of Mississippi Federated Cooperatives to you and Mr. Bradford for the promptness with which our request was handled and the thoroughness of Mr. Bradford's report."—A. E. Beall, assistant general manager, Mississippi Federated Cooperatives, Jackson, Miss. (October 29, 1959).

"Thank you very much for your fine contribution in analyzing our bulk feed distribution problem, particularly in the Danielson, Conn., area. Your report is well written and gives us a clear picture of the situation."—Ensio Nuppola, general manager, United Cooperative Farmers, Inc., Fitchburg, Mass. (November 19, 1959).

"The Farmer Cooperative Service has been doing a wonderful job for us as well as many other cooperatives, by furnishing us information and statistics on the business activities of the cooperatives all over the United States. * * * (and) for the help and work that we have been receiving from Dan McVey and Elmer Perdue in compiling the statistics of the operation of the Cooperative Oilseed Mills."—Glenn Pogeler, manager, North Iowa Cooperative Processing Association, Mason City, Iowa (December 21, 1959).

"On behalf of the board of directors, and myself, I wish to express our thanks for a most thorough and excellent analysis of our cooperative situation."—Chas. A. Reid, Jr., manager, the Colorado Springs Milk Producers' Association, Inc., Colorado Springs, Colo. (Letter to Stanley F. Krause, July 20, 1959.)

"* * * the Farmer Cooperative Service has specifically been of assistance to us last year in connection with our considerations of a Statewide egg marketing cooperative which has embraced the principle of a Statewide multiservice integrated cooperative. John Scanlan's report and his consultation with the Committee of Three recently have been of great help."—L. N. Thompson, general manager, Nulaid Farmers Association, San Leandro, Calif. (January 6, 1960).

"* * * I feel the overall program of Farmer Cooperative Service is constructive in the effort to foster sound cooperative development and in giving the general public a better appreciation of the services rendered by cooperatives."—F. R. Wilcox, general manager, Sunkist Growers, Los Angeles, Calif. (December 30, 1959).

"One of the greatest services the Farmer Cooperative Service has rendered to cooperatives generally in recent years was its study of their capitalization and their practices in retiring certificates issued to patrons in evidence of retained earnings or capital retains."—Marvin H. Walker, general manager, Florida Citrus Canners Cooperative, Lake Wales, Fla. (December 15, 1959).

"The Cooperative Service has been helpful to the Farmers Union Grain Terminal Association in the very expeditious manner in which they made a survey of the area around Edgeley, N. Dak., so that GTA could determine whether or not a feed mill should be located there. The work was done very rapidly but it was finished by a satisfactorily complete report."—J. E. Wells, Jr., executive assistant to the general manager, Farmers Union Grain Terminal Association, St. Paul, Minn. (December 21, 1959).

COMMENTS FROM FARM AND COOPERATIVE ORGANIZATIONS

"From the beginning of the year to the end you or some of your staff have worked with us whether on our annual meeting program, in the research conferences, in the membership relations clinics, or the workshops of various kinds

throughout the country. Your Service makes our program far more effective than it could be without you and we sincerely appreciate it. * * * I think your research studies, your bulletins, reporting on the results of projects and your News for Farmer Cooperatives are doing a magnificient job that could be improved only by having more of the same."—J. K. Stern, president, American Institute of Cooperation, Washington, D.C. (December 21, 1959).

"While the Farmer Cooperative Service has conducted a couple of research projects specifically at the request of the National Grange during the past year, our interest in your valuable service is far broader than this. Being a general farm organization, we feel that cooperatives are an integral part of our corporate national economy, and that they play a vital role in our perennial struggle to help farmers attain for themselves an equitable level of living and a satisfactory way of life. Occupying the important place that they do in the overall scheme of things in rural America, it is altogether proper and fundamentally sound that Government, through the Department of Agriculture, should pay considerable attention to this wholesome force operating in today's farm world. Your organization enjoys this worthwhile Governmental position; it renders a most valuable service."—Herschel D. Newsom, master, National Grange, Washington, D.C. (December 14, 1959).

"The work of the Farmer Cooperative Service has been outstanding and the American Farm Bureau Federation has appreciated the opportunity of working with you and your associates in our efforts to improve the cooperative marketing, purchasing and bargaining activities of farmers. We have made considerable use of the publications of the Farmer Cooperative Service, and a number of your staff have appeared on our programs."—Charles B. Shuman, president, American Farm Bureau Federation, Chicago, Ill. (January 8, 1960).

"Farmer cooperatives need research and educational assistance such as is provided by the Farmer Cooperative Service. This work needs to be strengthened as the problems and responsibilities of farmer cooperatives increase."—John Baker, director, division of legal services, National Farmers Union, Washington, D.C. (December 1, 1959).

"This letter is written to express the sincere appreciation of the Cooperative League of the services rendered by Farmer Cooperative Service during the year just ended. We deeply appreciate the basic research which you are constantly carrying on in Farmer Cooperative Service and which is indispensable to anyone working for the sound development of cooperatives in the United States. And, beyond this your Service made an outstanding and indispensable contribution to the very important meeting of decisionmaking cooperative leaders of cooperatives which we brought together last July at Madison, Wis. The information and material presented at that time by your Dr. Gardner were essential background for all of the discussions. In the third place, we constantly make use of your statistical informational material, and we are also calling upon you and others on your staff to give leadership to us in the various additional activities which we are carrying on."—Jerry Voorhis, executive director, the Cooperative League of the U.S.A., Chicago, Ill. (December 17, 1959).

"The Farmer Cooperative Service has been of help during the past year. It has provided research and technical studies. * * *; it has contributed important advice and guidance on numerous matters to the members of this Federation."—Roy F. Hendrickson, executive secretary, National Federation of Grain Cooperatives, Washington, D.C. (December 10, 1959).

### Comments From State Cooperative Councils

"We wish to express appreciation to you and your staff for help it has rendered this association and all cooperatives of Minnesota during this past year. To mention a few specific instances where help has been given I might cite the excellent presentation Dr. Martin Abrahamsen of your staff gave at our annual MAC conference. He discussed, and prepared especially for the occasion, a paper entitled 'Using Employees and Committees in Membership Relations' * * * The statistics contained in your publication, General Report 60, released June 1959, were very valuable in compiling a fact sheet on Minnesota cooperatives. * * * A good number of our cooperative leaders attended the membership relations conference sponsored by the Farmer Cooperative Service and the American Institute of Cooperation. * * * It was, indeed, a very productive and worthwhile session * * * This fall we had requests from 57 vocational agriculture departments for basic subject matter on cooperative principles. Again, we called on your organization for literature, and other teaching aids and made them

available to the vo-ag teachers * * * I know also that your staff has helped our commodity cooperatives with many individual requests in studying possible mergers, marketing patterns, plant layout, help with their publications, manuals for directors, etc. Another value is the continuing contact you maintain with people in professional agricultural positions such as county agents, land-grant college people, vocational agriculture instructors, etc. * * *—Edward E. Slettom, executive secretary, Minnesota Association of Cooperatives, St. Paul, Minn. (December 11, 1959).

"Your monthly publication, 'News for Farmer Cooperatives,' * * * provides valuable research and study information on operations of other cooperatives throughout the nation and how specific marketing, processing, servicing, and purchasing problems are solved. * * * Your research and study bulletins provide me with valuable information as to how other cooperatives operate and have solved particular problems. At our annual bookkeepers school for cooperative cotton gins and the cooperative managers school * * * instructors from Farmer Cooperative Service * * * have contributed much to their success."—Bruno E. Schroeder, executive secretary and treasurer, Texas Federation of Cooperatives, Austin, Tex. (December 16, 1959).

"We also gained real help from the materials published and mailed out from your office. The problems of agriculture are undergoing rapid change, and it is imperative that our farm leaders be kept up to date with all new developments. We look to the Farmer Cooperative Service for much of this basic information."—Harry B. Caldwell, secretary, Farmers Cooperative Council of North Carolina, Greensboro, N. C. (December 16, 1959).

"The Farmer Cooperative Service of USDA has been of great benefit to cooperatives and people in the State of Utah. Your cooperative management studies have been of great assistance on matters of organization, financial structure, personnel training, and related fields. Your frequent releases, copies of talks given elsewhere, etc., point up the changing needs of farm people and the kinds of changes which must be made in the organization and structure of cooperatives to render them competitive and more effective tools for use of farm people * * * I frankly feel you have been able to render this valuable service because of the high caliber of personnel on your staff and the approaches which they use in working with people as well as for them."—Morris H. Taylor, secretary of council, Utah Council of Farmer Cooperatives, Logan, Utah (December 21, 1959).

"We, in the Ohio Council of Farmer Cooperatives, like many other State councils are not in a position to finance any of the research to obtain data and important information concerning farmer cooperatives in our own State, nor in the country as a whole. Naturally, we depend very much on the Farmer Cooperative Service, with its well qualified and well trained research staff, to provide us with facts to be used in our education program and which will show trends which will enable us to make important decisions concerning our operations."—Clarence A. Gehrig, executive secretary, Ohio Council of Farmer Cooperatives, Inc., Columbus, Ohio (January 18, 1960).

"* * * the Service has been of continuous and invaluable help in many ways throughout the years. It has provided information, educational materials, statistics, personal services, and assistance in many other ways to cooperatives as well as to public agencies working with farmer groups. In addition, I am quite confident that the work of the Farmer Cooperative Service has also been beneficial to many organizations and groups other than farmer cooperatives. I have always felt that there is a need for and a place in the Department of Agriculture for an agency that is primarily concerned with the problems of organized groups of farmers who are engaged in business activities to improve their economic position."—M. D. Woodin, secretary, Louisiana Council of Farmer Cooperatives, Lake Charles, La. (December 14, 1959).

"As secretary of the Michigan Association of Farmer Cooperatives, I would like to express our appreciation for the outstanding contribution the Farmer Cooperative Service was provided Michigan cooperatives. Your department, during the past year has been most helpful in the following areas: (1) Provided personnel for meeting; (2) research completed with our major supply cooperatives; (3) bulletins and copies of talks which we have used in many of our meetings; (4) your newsletter—most of our cooperative personnel received

your monthly publication and we have heard many favorable comments."—L. A. Cheney, secretary, Michigan Association of Farmer Cooperatives, Lansing, Mich. (December 18, 1959).

COMMENTS FROM BANKS FOR COOPERATIVES

"* * * I cannot point to any case where our cooperatives have asked you for help and failed to receive it. In fact, as you know, we have on more than one occasion suggested to a cooperative that it ask you for help * * *."—J. Roberts Doe, executive vice president, Springfield Bank for Cooperatives (December 17, 1959).

"* * * the Farmer Cooperative Service has been of great benefit to this bank and the cooperatives which it served during the past year and also over the period of the many years which the Farmer Cooperative Service has been in existence. We have benefited by the accumulation of special study reports and bulletins which have in the past been prepared by the Farmer Cooperative Service. * * * Our files of [the News for Farmer Cooperatives] serve as a valuable reference when seeking information on problems encountered in serving cooperatives * * *."—Gilbert K. Terpening, secretary, Wichita Bank for Cooperatives (January 7, 1960).

"To this bank, the ready availability of the services of FCS through the years has been and is a very real asset, both directly and indirectly. As you know, we consult frequently with you or with members of your staff in matters relating to the business of our borrowers—prospective and actual. These matters include principles of organization, of capitalization, of membership relations, of management, and of operating techniques, as well as appraisals of economic climate, needs and opportunities. And, of course, our borrowers and prospective borrowers often call upon you for services of that character—sometimes at our suggestion and often upon their own initiative."—R. B. Jones, Jr., president, Baltimore Bank for Cooperatives (December 16, 1959).

"* * * When farmers think of engaging upon a new cooperative venture or in evaluating the efficiency of present operations, cost studies such as those your staff have made of soybean processing plants, portable feed units, etc., are most helpful. Research of FCS has enabled several large dairy cooperatives in our four-State area to reach common understanding and to effect mergers. Other studies made by FCS are being reviewed in the same light by cooperatives at the present time. This service has enabled us to do a more adequate job in financing mergers."—L. L. Ullyot, president, St. Paul Bank for Cooperatives (January 14, 1960).

"I want to congratulate you on the fine service your agency renders to agriculture through cooperatives and commend you for the high type of men you have on your staff."—J. D. Lawrence, president, Columbia Bank for Cooperatives (December 18, 1959).

"The reports of studies you make of the various operations and problems of farmer cooperatives, which they can and do use to improve their operations, are of indirect benefit to the central bank besides helping us keep informed on such matters. In addition to the above reports, the News for Farmer Cooperatives helps to keep us up to date on new developments across the country in the cooperative field."—Homer G. Smith, president, Central Bank for Cooperatives, Washington, D.C. (December 11, 1959).

INTEGRATION

Mr. MARSHALL. How does this problem of integration that we hear so much about affect your work?

Mr. KNAPP. It affects our work very much. Cooperatives are to quite an extent integrated organizations. That is, the problem of the farmer is not only a problem of producing products but it also involves the taking of the products on to the market. To the extent that producing and marketing can be combined efficiently, you have a more effective operation that helps the farmer increase his income. Gen-

erally, integration is growing in agriculture and farmer cooperatives cannot escape this trend. They are developing integrated programs that are necessary if they are going to compete in a generally integrated type of agriculture such as we are watching develop.

A large part of our work is done to help farmers build the kind of cooperatives they need to get the advantages of integration for themselves so as to improve their incomes from farming. The advantages of integration go to those who are the integrators rather than to those who are integrated. Cooperatives provide the only means through which farmers can control this process and get the benefits for themselves.

Mr. MARSHALL. Mr. Natcher?

Mr. NATCHER. I have no questions. I would like to thank Dr. Knapp and the members of his staff for the fine work they are doing.

Mr. ANDERSEN. That is about all I would like to say, Mr. Chairman. I think these gentlemen are doing a fine job and I see no need for any questions.

Mr. MARSHALL. Thank you, Dr. Knapp and Secretary Peterson.

Mr. PETERSON. Thank you, Mr. Chairman.

Mr. MARSHALL. We appreciate the contribution you have made to the deliberations of this committee. It does seem that in the field of cooperative marketing that it does give the farm producers of this country an opportunity to meet some of the economic trends in a fair way, not getting any undue advantage of anybody to try to work out someway cooperatively so they can put their products into the market, that they can carry on their farm operations. It means that small farmers do have an opportunity of combining their resources to do something for themselves.

Mr. KNAPP. Thank you.

Mr. PETERSON. That states the case very well, Mr. Marshall. As I tried to say in my brief statement, the farmer cooperative is the business representative of each of its farmer members. Today, if I recall the figures correctly, farmers in the aggregate are buying about 65 percent of their total production resources from off the farm sources of supply. The margins for farm products are narrowing. Costs are high. Risks are great. Management becomes a key factor in a farm operation and the individual farmer is so busy operating his farm and trying to use those resources effectively and stay in business, that he has little time and in some cases less understanding of the intricacies of the business community with which he must deal. He thereby needs a business agent to represent him and his cooperative is and has been a very effective means of acquiring for him that business representation.

Mr. MARSHALL. Thank you.

Mr. KNAPP. Thank you, Mr. Chairman. May I ask permission to round out my comments on integration, to make it a little more clear for you?

Mr. MARSHALL. We will be pleased to have you.

# FEDERAL EXTENSION SERVICE

## WITNESSES

**ERVIN L. PETERSON, ASSISTANT SECRETARY OF AGRICULTURE**
**C. M. FERGUSON, ADMINISTRATOR, EXTENSION SERVICE**
**P. V. KEPNER, DEPUTY ADMINISTRATOR, EXTENSION SERVICE**
**L. M. SCHRUBEN, ASSISTANT ADMINISTRATOR, EXTENSION SERVICE**
**CHARLES L. GRANT, DIRECTOR OF FINANCE AND BUDGET OFFICER, DEPARTMENT OF AGRICULTURE**

## Cooperative Extension Work, Payments and Expenses

*Program and financing*

| | 1959 actual | 1960 estimate | 1961 estimate |
|---|---|---|---|
| Program by activities: | | | |
| 1. Payments to States and Puerto Rico: | | | |
| (a) Payments for cooperative agricultural extension work under Smith-Lever Act | $51,614,334 | $52,220,000 | $55,085,000 |
| (b) Payments and contracts under the Agricultural Marketing Act | 1,510,379 | 1,606,096 | 1,495,000 |
| 2. Retirement costs for extension agents | 5,365,243 | 5,674,375 | 5,961,000 |
| 3. Penalty mail | 2,491,307 | 2,491,307 | 2,491,307 |
| 4. Federal Extension Service | 2,238,265 | 2,242,540 | 2,392,660 |
| Total program costs [1] | 63,219,528 | 64,234,318 | 67,424,967 |
| 5. Relation of costs to obligations: | | | |
| Costs financed from obligations of other years net (−) | | −111,096 | |
| Obligations incurred for costs of other years net | 35,197 | | |
| Total program (obligations) | 63,254,725 | 64,123,222 | 67,424,967 |
| Financing: Unobligated balance no longer available | 464,352 | | |
| New obligational authority | 63,719,077 | 64,123,222 | 67,424,967 |
| New obligational authority: | | | |
| Appropriation | $63,159,395 | $64,123,222 | $67,424,967 |
| Transferred from "Conservation reserve program" Commodity Stabilization Service (73 Stat. 34) | 559,682 | | |
| Appropriation (adjusted) | 63,719,077 | 64,123,222 | 67,424,967 |

[1] Includes capital outlay as follows: June 30, 1959, $26,822; 1960, $16,000; 1961, $14,000.

*Object classification*

| | 1959 actual | 1960 estimate | 1961 estimate |
|---|---|---|---|
| Total number of permanent positions | 244 | 238 | 246 |
| Full-time equivalent of all other positions | 1 | 1 | |
| Average number of all employees | 233 | 232 | 241 |
| Number of employees at end of year | 236 | 237 | 244 |
| Average GS grade and salary | 8.7 $7,288 | 8.8 $7,386 | 8.9 $7,503 |
| 01 Personal services: | | | |
| Permanent positions | $1,693,423 | $1,701,127 | $1,785,502 |
| Positions other than permanent | 3,996 | 2,506 | |
| Other personal services | 13,729 | 19,342 | 13,271 |
| Total personal services | 1,711,148 | 1,722,975 | 1,798,773 |
| 02 Travel | 215,393 | 216,000 | 233,400 |
| 03 Transportation of things | 20,841 | 21,000 | 28,000 |
| 04 Communication services | 29,824 | 30,000 | 32,100 |
| Penalty mail for cooperative extension agents and State extension directors | 2,491,307 | 2,491,307 | 2,491,307 |
| 05 Rents and utility services | 1,626 | 1,680 | 1,680 |
| 06 Printing and reproduction | 68,424 | 71,200 | 89,700 |
| 07 Other contractual services | 230,374 | 109,885 | 124,505 |
| Services performed by other agencies | 29,388 | 30,000 | 31,372 |
| 08 Supplies and materials | 18,007 | 18,000 | 19,400 |
| 09 Equipment | 25,488 | 9,500 | 16,500 |
| 11 Grants, subsidies, and contributions | 5,474,141 | 5,785,375 | 6,076,930 |
| Payments to States and Puerto Rico | 52,937,892 | 53,615,000 | 56,480,000 |
| 13 Refunds, awards, and indemnities | 125 | 500 | 500 |
| 15 Taxes and assessments | 747 | 800 | 800 |
| Total obligations | 63,254,725 | 64,123,222 | 67,424,967 |

## Justification of the Estimate

Mr. Whitten. Gentlemen, the committee will come to order. We come to the Extension Service. We would like to have pages 155, 156, 157, and tables 1, 2, 3, and 4 of the justifications included in the record at this point.

(The pages referred to are as follows:)

### Purpose Statement

Cooperative agricultural extension work was established by the act of May 8, 1914, as amended by the act of June 26, 1953 (7 U.S.C. 341–348), and the act of August 11, 1955 (7 U.S.C. 347a). The legislation authorizes the Department of Agriculture to give, through the land-grant colleges, instruction and practical demonstrations in agriculture and home economics and related subjects and to encourage the application of such information by means of demonstrations, publications, and otherwise to persons not attending or resident in the colleges. Extension educational work is also authorized under the Agricultural Marketing Act of 1946 (7 U.S.C. 1621–1627).

Cooperative agricultural extension work is carried on by incorporating research results, technological advancements, and situation and program facts of the Department of Agriculture and the agricultural colleges and experiment stations into a national educational program.

State and county extension work is financed from Federal, State, county, and local sources. These funds are used within the States for the employment of county agents, home demonstration agents, 4–H Club agents, State specialists and others who conduct the joint educational programs adapted to local problems and conditions.

The Federal Extension Service, as a partner in the cooperative extension effort, is responsible for administering Federal laws authorizing extension work and for coordinating the work among the States through cooperation with committees of State directors and other means. The Administrator of this Service is also responsible for the coordination of all of the educational work of the Department.

On November 30, 1959, there were approximately 15,000 extension field agents and 238 Federal employees, 231 of whom were headquartered in Washington.

| | Appropriated, 1960 | Budget estimates, 1961 |
|---|---|---|
| Appropriated funds: | | |
| Payments to States and Puerto Rico | $53,715,000 | $56,580,000 |
| Retirement costs for extension agents | 5,674,375 | 5,961,000 |
| Penalty mail | 2,491,307 | 2,491,307 |
| Federal Extension Service | 2,242,540 | 2,392,660 |
| Total, appropriated funds | 64,123,222 | 67,424,967 |

*Cooperative extension work, payments and expenses*

| | Payments to States and Puerto Rico | Retirement costs for extension agents | Penalty mail | Federal Extension service | Total |
|---|---|---|---|---|---|
| Appropriation Act, 1960, and base for 1961 | $53,715,000 | $5,674,375 | $2,491,307 | $2,242,540 | $64,123,222 |
| Budget estimate, 1961 | 56,580,000 | 5,961,000 | 2,491,307 | 2,392,660 | 67,424,967 |
| Increases | +2,865,000 | +286,625 | ---------- | +150,120 | +3,301,745 |

*Summary of increases, 1961*

| | |
|---|---|
| Payments to States and Puerto Rico: For payments for cooperative agricultural extension work under sec. 3(c) of the Smith-Lever Act to strengthen and expand extension work with disadvantaged agricultural families | +$2,865,000 |
| Retirement costs for extension agents: To provide for employer's share of Federal contributions to the retirement fund for cooperative extension agents pursuant to Public Law 854 | +286,625 |
| Federal Extension Service: | |
| To strengthen the Federal staff of the Extension Service to meet increased responsibilities resulting from intensified extension programs and to provide national leadership in subject-matter areas not now covered | +137,420 |
| For employee health benefit costs pursuant to Public Law 86-382 | +12,700 |
| Subtotal | 150,120 |
| Total increase, cooperative extension work, payments and expenses | +3,301,745 |

*Project statement*

| Project | 1959 | 1960 (estimated) | Increase | | 1961 (estimated) |
|---|---|---|---|---|---|
| | | | Health benefit costs (Public Law 86-382) | Other | |
| 1. Payments to States and Puerto Rico: | | | | | |
| (a) Payments for cooperative agricultural extension work under the Smith-Lever Act | $51,664,652 | $52,220,000 | ---------- | +$2,865,000 | $55,085,000 |
| (b) Payments and contracts under the Agricultural Marketing Act | 1,493,764 | 1,495,000 | ---------- | ---------- | 1,495,000 |
| 2. Retirement costs for extension agents | 5,366,075 | 5,674,375 | ---------- | +286,625 | 5,961,000 |
| 3. Penalty mail (for extension agents and State extension directors) | 2,491,307 | 2,491,307 | ---------- | ---------- | 2,491,307 |
| 4. Federal Extension Service | 2,238,927 | 2,242,540 | +$12,700 | +137,420 | 2,392,660 |
| Subtotal [1] | 63,254,725 | 64,123,222 | +12,700 | +3,289,045 | 67,424,967 |
| Unobligated balance | 464,352 | ---------- | ---------- | ---------- | ---------- |
| Total employee health benefit costs (Public Law 86-382) | [----------] | [----------] | [+12,700] | [+534] | [13,234] |
| Total available or estimate | 63,719,077 | 64,123,222 | +12,700 | +3,289,045 | 67,424,967 |
| Transferred from "Conservation reserve program, Commodity Stabilization Service" | −559,682 | | | | |
| Total appropriation | 63,159,395 | | | | |

[1] Represents obligations. Applied costs for 1959 are $63,219,528. The difference of $35,197 reflects, primarily, the decrease in contractual services and equipment used in 1959 below contracts made and orders placed in that year. Applied costs for 1960 are $64,234,318. The difference of $111,096 is primarily the excess contractual services and equipment to be used in 1960 over contracts to be made and orders placed.

TABLE I.—*Extension Service Appropriations for the States and Puerto Rico*

| | 1960 | Increases or decreases, 1961 | Total proposed for 1961 |
|---|---|---|---|
| Payments to States based on rural and farm population, Smith-Lever Act, secs. 3(b) and 3(c)2: | | | |
| Alabama | $1,851,955 | $96,636 | $1,948,591 |
| Alaska | 76,288 | 2,435 | 78,723 |
| Arizona | 248,962 | 12,635 | 261,597 |
| Arkansas | 1,511,604 | 76,667 | 1,588,271 |
| California | 1,298,295 | 85,091 | 1,383,386 |
| Colorado | 465,504 | 23,378 | 488,882 |
| Connecticut | 267,098 | 14,927 | 282,025 |
| Delaware | 127,332 | 4,871 | 132,203 |
| Florida | 608,229 | 36,930 | 645,159 |
| Georgia | 1,934,603 | 100,733 | 2,035,336 |
| Hawaii | 244,359 | 10,056 | 254,415 |
| Idaho | 352,210 | 17,677 | 369,887 |
| Illinois | 1,573,383 | 91,479 | 1,664,862 |
| Indiana | 1,308,503 | 76,496 | 1,384,999 |
| Iowa | 1,414,934 | 78,100 | 1,493,034 |
| Kansas | 950,061 | 47,473 | 997,534 |
| Kentucky | 1,826,811 | 100,705 | 1,927,516 |
| Louisiana | 1,206,636 | 61,913 | 1,268,549 |
| Maine | 344,712 | 18,307 | 363,019 |
| Maryland | 486,084 | 28,335 | 514,419 |
| Massachusetts | 378,637 | 23,207 | 401,844 |
| Michigan | 1,434,798 | 85,492 | 1,520,290 |
| Minnesota | 1,354,690 | 75,292 | 1,429,982 |
| Mississippi | 1,906,248 | 100,476 | 2,006,724 |
| Missouri | 1,601,279 | 86,265 | 1,687,544 |
| Montana | 348,623 | 15,843 | 364,466 |
| Nebraska | 796,314 | 39,365 | 835,679 |
| Nevada | 96,199 | 2,464 | 98,663 |
| New Hampshire | 180,613 | 8,538 | 189,151 |
| New Jersey | 373,690 | 22,748 | 396,438 |
| New Mexico | 318,786 | 15,872 | 334,658 |
| New York | 1,358,175 | 86,093 | 1,444,268 |
| North Carolina | 2,485,962 | 143,823 | 2,629,785 |
| North Dakota | 543,683 | 25,499 | 569,182 |
| Ohio | 1,785,831 | 107,180 | 1,893,011 |
| Oklahoma | 1,278,842 | 58,102 | 1,336,944 |
| Oregon | 506,953 | 30,283 | 537,236 |
| Pennsylvania | 1,781,173 | 116,434 | 1,897,607 |
| Puerto Rico | 1,577,470 | 92,396 | 1,669,866 |
| Rhode Island | 98,853 | 3,753 | 102,606 |
| South Carolina | 1,337,916 | 72,485 | 1,410,401 |
| South Dakota | 544,492 | 25,011 | 569,503 |
| Tennessee | 1,848,794 | 102,624 | 1,951,418 |
| Texas | 2,955,187 | 143,909 | 3,099,096 |
| Utah | 235,891 | 10,973 | 246,864 |
| Vermont | 226,227 | 10,515 | 236,742 |
| Virginia | 1,505,085 | 84,603 | 1,589,688 |
| Washington | 629,872 | 37,302 | 667,174 |
| West Virginia | 932,821 | 55,466 | 988,287 |
| Wisconsin | 1,349,880 | 76,753 | 1,426,633 |
| Wyoming | 182,144 | 6,790 | 188,934 |
| Subtotal | 50,052,691 | 2,750,400 | 52,803,091 |
| Special-need funds, secs. 3(b) and 3(c)1 of Smith-Lever Act | 1,277,309 | 114,600 | 1,391,909 |
| Smith-Lever Act, sec. 8 funds | 890,000 | ---------- | 890,000 |
| Agricultural Marketing Act funds (including contracts) | 1,495,000 | ---------- | 1,495,000 |
| Total, payments and contracts | 53,715,000 | 2,865,000 | 56,580,000 |
| Retirement costs: Federal share of retirement costs for cooperative extension employees | 5,674,375 | 286,625 | 5,961,000 |
| Penalty mail: Reimbursement to Post Office for penalty mail for Extension Service | 2,491,307 | ---------- | 2,491,307 |
| Grand total | 61,880,682 | 3,151,625 | 65,032,307 |

TABLE II.—*Sources of funds allotted for cooperative extension work in the States and Puerto Rico for the fiscal year ending June 30, 1960*

| States | Grand total | Total Federal funds | Total within States | Funds from Federal sources | | State and college | County | Non-tax |
|---|---|---|---|---|---|---|---|---|
| | | | | Amended Smith-Lever | Agricultural Marketing Act (AMA)[1] | | | |
| Alabama | $3,737,241 | $1,896,106 | $1,841,135 | $1,871,356 | $24,750 | $1,093,600 | $747,535 | |
| Alaska | 230,640 | 107,993 | 122,647 | 105,493 | 2,500 | 122,647 | | |
| Arizona | 930,575 | 348,662 | 581,913 | 346,662 | 2,000 | 515,683 | 66,230 | |
| Arkansas | 3,239,847 | 1,591,603 | 1,648,244 | 1,569,603 | 22,000 | 1,187,729 | 397,055 | $63,460 |
| California | 6,853,109 | 1,376,895 | 5,476,214 | 1,325,295 | 51,600 | 4,032,498 | 1,406,816 | 36,900 |
| Colorado | 1,629,706 | 557,564 | 1,072,142 | 533,564 | 24,000 | 554,829 | 516,393 | 920 |
| Connecticut | 918,840 | 275,098 | 643,742 | 267,098 | 8,000 | 375,624 | 256,083 | 12,035 |
| Delaware | 350,929 | 160,181 | 190,748 | 136,181 | 24,000 | 168,748 | 3,100 | 18,900 |
| Florida | 2,694,661 | 630,957 | 2,063,704 | 622,207 | 8,750 | 1,221,032 | 842,672 | |
| Georgia | 4,709,096 | 2,058,289 | 2,650,807 | 2,010,289 | 48,000 | 1,526,060 | 1,093,847 | 30,900 |
| Hawaii | 927,119 | 262,359 | 664,760 | 244,359 | 18,000 | 664,760 | | |
| Idaho | 1,389,942 | 400,409 | 989,533 | 394,209 | 6,200 | 640,583 | 319,900 | 29,050 |
| Illinois | 3,938,479 | 1,608,083 | 2,330,396 | 1,581,083 | 27,000 | 1,883,425 | | 446,971 |
| Indiana | 3,766,927 | 1,371,702 | 2,395,225 | 1,326,702 | 45,000 | 1,200,656 | 1,130,694 | 63,875 |
| Iowa | 4,364,177 | 1,458,934 | 2,905,243 | 1,414,934 | 44,000 | 1,323,119 | 1,582,124 | |
| Kansas | 3,862,416 | 1,024,561 | 2,837,855 | 989,561 | 35,000 | 763,043 | 2,006,847 | 67,965 |
| Kentucky | 3,516,685 | 1,942,286 | 1,574,399 | 1,895,286 | 47,000 | 972,000 | 600,000 | 2,399 |
| Louisiana | 3,961,256 | 1,307,599 | 2,653,557 | 1,260,599 | 47,000 | 2,340,860 | 301,637 | 11,060 |
| Maine | 840,117 | 374,290 | 465,827 | 359,290 | 15,000 | 317,897 | 147,930 | |
| Maryland | 2,197,708 | 538,274 | 1,659,434 | 492,274 | 46,000 | 1,287,018 | 372,416 | |
| Massachusetts | 1,629,589 | 423,637 | 1,205,952 | 378,637 | 45,000 | 414,285 | 791,667 | |
| Michigan | 4,792,575 | 1,611,898 | 3,180,677 | 1,471,898 | 140,000 | 2,239,500 | 893,711 | 47,466 |
| Minnesota | 2,868,137 | 1,418,031 | 1,450,106 | 1,389,881 | 28,150 | 691,356 | 745,000 | 13,750 |
| Mississippi | 4,083,591 | 2,005,247 | 2,078,344 | 1,975,247 | 30,000 | 1,236,450 | 804,998 | 36,896 |
| Missouri | 3,895,521 | 1,773,232 | 2,122,289 | 1,706,232 | 67,000 | 1,157,644 | 812,999 | 151,646 |
| Montana | 1,457,765 | 451,855 | 1,005,910 | 441,855 | 10,000 | 533,886 | 460,399 | 11,625 |
| Nebraska | 2,134,068 | 856,114 | 1,277,954 | 843,614 | 12,500 | 767,954 | 510,000 | |
| Nevada | 495,380 | 176,799 | 318,581 | 176,799 | | 218,013 | 100,568 | |
| New Hampshire | 590,734 | 189,112 | 401,622 | 180,612 | 8,500 | 251,928 | 145,294 | 4,400 |
| New Jersey | 1,848,178 | 390,190 | 1,457,988 | 373,690 | 16,500 | 829,336 | 628,652 | |
| New Mexico | 1,273,533 | 449,060 | 824,473 | 425,300 | 23,760 | 628,987 | 195,486 | |
| New York | 6,684,761 | 1,393,108 | 5,291,653 | 1,358,174 | 34,934 | 2,164,889 | 2,751,051 | 375,713 |
| North Carolina | 6,808,089 | 2,628,560 | 4,179,529 | 2,542,560 | 86,000 | 2,671,413 | 1,508,116 | |
| North Dakota | 1,353,458 | 617,633 | 735,825 | 602,683 | 14,950 | 295,614 | 440,211 | |
| Ohio | 3,807,616 | 1,844,410 | 1,963,206 | 1,807,410 | 37,000 | 1,073,864 | 830,832 | 58,510 |
| Oklahoma | 3,710,372 | 1,395,842 | 2,314,530 | 1,338,842 | 57,000 | 1,671,716 | 622,670 | 20,144 |
| Oregon | 2,963,953 | 613,442 | 2,350,511 | 571,942 | 41,500 | 1,828,157 | 522,354 | |
| Pennsylvania | 3,827,047 | 1,812,974 | 2,014,073 | 1,792,974 | 20,000 | 1,464,073 | 550,000 | |
| Puerto Rico | 2,581,715 | 1,592,715 | 989,000 | 1,592,715 | | 989,000 | | |
| Rhode Island | 270,086 | 102,854 | 167,232 | 98,854 | 4,000 | 138,623 | 24,325 | 4,284 |
| South Carolina | 2,534,998 | 1,391,688 | 1,143,310 | 1,384,188 | 7,500 | 987,800 | 148,670 | 6,840 |
| South Dakota | 1,516,200 | 581,993 | 934,207 | 580,493 | 1,500 | 685,600 | 240,000 | 8,607 |
| Tennessee | 3,444,501 | 1,932,553 | 1,511,948 | 1,906,553 | 26,000 | 980,000 | 531,948 | |
| Texas | 6,837,895 | 3,114,910 | 3,722,985 | 3,099,710 | 15,200 | 1,674,094 | 2,048,091 | 800 |
| Utah | 935,731 | 327,912 | 607,819 | 310,891 | 17,021 | 449,500 | 158,319 | |
| Vermont | 714,992 | 249,227 | 465,765 | 238,227 | 11,000 | 342,640 | 123,125 | |
| Virginia | 4,112,618 | 1,549,669 | 2,562,949 | 1,525,069 | 24,600 | 2,030,310 | 520,000 | 12,639 |
| Washington | 2,310,367 | 729,157 | 1,581,210 | 710,472 | 18,685 | 965,938 | 615,272 | |
| West Virginia | 1,739,678 | 975,371 | 764,307 | 966,771 | 8,600 | 470,082 | 290,125 | 4,100 |
| Wisconsin | 3,823,536 | 1,419,881 | 2,403,655 | 1,381,881 | 38,000 | 1,176,652 | 1,227,003 | |
| Wyoming | 845,358 | 284,095 | 561,263 | 279,795 | 4,300 | 362,523 | 198,740 | |
| Unallotted | 19,986 | 19,986 | | 19,986 | | | | |
| AMA Contracts | 100,000 | 100,000 | | | 100,000 | | | |
| Grand total | 140,071,398 | 53,715,000 | 86,356,398 | 52,220,000 | 1,495,000 | 53,583,638 | 31,230,905 | 1,541,855 |

[1] Preliminary distribution.

TABLE III.—*Statement of direct payments to and contracts with States and Puerto Rico, indicating those requiring offset, those not requiring such offset, and basis of distribution as estimated for 1961*

| Item | Total estimate, 1961 | Basis of allotment | Amount paid without offset | Amount requiring offset |
|---|---|---|---|---|
| Payments to States and Puerto Rico. | $55,085,000 | | | |
| Smith-Lever Act: | | | | |
| Sec. 3(b) | | $31,597,279, frozen by sec. 3(b) of Public Law 83. | $14,513,808 | $17,083,471 |
| | | $300,000, for Puerto Rico; specified by law. | | 300,000 |
| Sec. 3(c) | | $22,297,721 ($10,702,906, farm population) ($10,702,906, rural population) ($891,909, special needs). | | 22,297,721 |
| Sec. 8 | | $890,000, rural development; on basis of special needs. | 890,000 | |
| Payments and contracts under the Agricultural Marketing Act. | 1,495,000 | $1,495,000, basis of approved projects and contracts. | [1] 100,000 | 1,395,000 |
| Total, direct Federal payments. | 56,580,000 | 56,580,000 | 15,503,808 | 41,076,192 |

[1] Regional marketing contracts.

TABLE IV.—*Cooperative extension agents, by organization classes*

| Extension workers by organization classes | June 30, 1957 | June 30, 1958 | June 30, 1959 |
|---|---|---|---|
| State workers: | | | |
| Directors and administrative personnel | 195 | 202 | 212 |
| Specialists | 2,368 | 2,528 | 2,496 |
| Total, State staff | 2,563 | 2,730 | 2,708 |
| County workers: | | | |
| Supervisors | 746 | 747 | 730 |
| Agricultural agents [1] | 6,951 | 7,064 | 6,993 |
| Home economics agents [1] | 4,053 | 4,271 | 4,273 |
| Total, county staff | 11,750 | 12,082 | 11,996 |
| Grand Total | 14,313 | 14,812 | 14,704 |

[1] Includes 4-H Club agents.

Mr. WHITTEN. We have Mr. Peterson, Assistant Secretary, and Mr. Ferguson, Administrator of the Extension Service, and their associates with us today.

We might go ahead, Mr. Peterson, with your statement.

## GENERAL STATEMENT OF ASSISTANT SECRETARY OF AGRICULTURE

Mr. PETERSON. As you are quite well aware American agriculture has been experiencing dramatic changes. These changes are of great significance to the Nation and to every individual family engaged in agriculture.

Technology is advancing at the most rapid rate in all recorded history. Efficiencies developed in agricultural production have made possible many of our advances in industry and other phases of our economy. Despite temporary transition problems associated with these rapid changes, disturbing as they are currently, agriculture

must continue to strive for the efficient production and marketing of its basic products. Such continuing progress is essential in the interest of National welfare and safety. It is also essential in the interest of individual farm families out of whose efforts the people of this Nation are provided the basic elements of their food, clothing, and shelter.

The Department of Agriculture had in its inception, nearly 100 years ago, the responsibility to inform and assist farm people in adapting and applying unfolding science to the business of producing the Nation's food and fiber supply. In addition, it had the responsibility of advising and consulting with farm families so that in performing this basic function, their own welfare would be enhanced to the end that they could maintain for themselves a satisfying and equitable place in our economy.

Approximately 50 years ago the Congress very wisely provided a cooperative arrangement through which the Department of Agriculture could cooperate with the individual State land-grant colleges and universities in performing this important function. Events over these intervening years testify amply to the wisdom of this action. Largely through the work of this Cooperative Extension Service, American farmers have been assisted to the attainment of a degree of proficiency that is the envy of the rest of the world.

Despite this fact, as we all know, a state of perfection has not been attained. Rapid changes in science and technology, in needs and uses of the products of agriculture, in the interlocking economic relationships between agriculture and the rest of our economy, both within this Nation and in our relations with other nations, continue to emerge.

Agriculture cannot stand still. Individual farm families are faced with the necessity to make continuing adjustments in their operations. To do less would soon relegate them to a state of economic decadence unacceptable to them and to the Nation.

It is for these and related reasons that the Cooperative Extension Service exists. Its record of contribution to the advancement of the capabilities of American farmers is an enviable one when considered in relation to the resources which it has had at its command. However, extension itself is changing, and must continue to change, in accordance with the more pressing needs and demands. This it is doing.

### A JOINT ENDEAVOR

It is a joint endeavor. Organized as it is with a full partnership relationship between the Department of Agriculture, the land-grant colleges and universities, and the people in each of our counties, it is responsive to the needs and interests of the people on the land. At the same time it has access to and the full support of all the research facilities of the Department and the colleges. In addition, it serves as the educational link between the Department and the individual farm families enabling them to understand the applicability of the various programs established by the Congress and administered by the Department.

This melding of resources into one functioning service to bring to farm people, quickly, efficiently, and in a readily understandable

form, the latest in technological and economic developments of significance to them, accounts for much of the progress American farmers have made.

We are glad to report that the working relationship between the Department and the various State land-grant colleges and universities is a very constructive and friendly one. Policy decisions are made through frequent friendly discussions permitting the development of a central major core of programs and educational services adaptable to the differing needs of each State and county.

However, despite all of the advantages of this kind of a flexible cooperative organization, permitting maximum adaptability to local problems and needs of major significance, the Extension Service is faced with both very significant challenges and equally significant problems.

### CONTINUING CHALLENGES

Some of the challenges have been alluded to previously. To these could be added the opportunities for making even greater contributions to the promotion of greater efficiencies in the marketing and distribution of farm products comparable to those which the Extension Service has helped to develop in the general area of production. Likewise a great challenge, and need, exist in the field of developing a better understanding of the economic forces affecting the welfare of agriculture over which the individual farm family has no determining control, but which in a very definite way affect its welfare.

Advancing technology itself is bringing to the forefront many new needs for intensive educational efforts to insure that farmers understand its effective use and applicability. For example, more is needed than just insuring that the application and use of this technology result in an adequate supply of food at reasonable cost. The factor of safety in the use of certain of the newer technological advances is a most important and complex one and probably will become increasingly so with further technological advances. This demands aggressive, continuing, up-to-the-minute educational efforts to insure that farmers are competent to take advantage of these technological advances and, at the same time, deliver to the market safe and wholesome products.

The rapid increase in our population and its increasing dispersal into the rural areas create another set of challenges and problems. Much of the countryside is no longer in the category of strictly farm communities. More and more we see the emergence of mixed communities involving full time farm families, farmers employed part-time in service or urban industries, and strictly rural residents. Most of these people are turning more and more to the Extension Service for information and counsel on agricultural, home economics, and related subjects. These requests continue to increase in volume and cannot be ignored. Even though the Extension Service worked with more farmers last year than before, and gave them more intensive assistance, a very real problem exists in rendering appropriate and adequate help to this increasing audience not fully engaged in agriculture.

It is a well recognized fact that today our farmers fall into two major categories with respect to their contributions to agricultural

production. There are about 2.1 million farmers—less than half of the total—who produce about 91 percent of all farm products marketed. These are mostly commercial family-sized farms in a position to take advantage of most of the agricultural programs.

On the other hand, there are about 2.6 million farmers—small scale and part-time—who produce only about 9 percent of the agricultural products marketed. This group, in general, is characterized by underemployment, low incomes, and inability to benefit from most agricultural programs. They are faced with difficulties in taking advantage of modern agricultural technology because of their small scale of operations. Those in this group are faced with the necessity of enlarging their agricultural operations, changing to other phases of the agricultural industry, or finding employment in some other industry or service operation.

### RURAL DEVELOPMENT PROGRAM

The need for helping this large segment of our farm population to make adjustments which will enable them to both make a satisfying contribution to our total economy, and at the same time maintain a satisfying level of living for themselves, is a pressing one. In recognition of this need, the rural development program was started 4 years ago. This program envisions providing limited assistance from Government to stimulate residents of areas characterized by concentrations of such underemployed families to take stock of their resources, opportunities, and needs, and to develop remedial practical measures to provide better income opportunities and living conditions locally whenever possible.

The Extension Service has been called upon to provide the organizational leadership and educational services essential to this kind of group effort. Experience in the pilot areas over the past 4 years shows that with minimum—but strategically important—assistance, lay groups working together can evaluate their resources, discover opportunities for improvement, and develop practical means of improving incomes, living conditions and the welfare of the areas in which they live. At the same time, these lay groups, working with local representatives of agencies of this Department, and of other Departments of Federal and State Governments, are able to give direction to adjustments in the programs and services of such agencies better to fit the needs of such areas.

The proposed increase in the recommendations for payments to States in support of the Extension Service are primarily to strengthen and expand Extension's leadership in rural development type programs. In addition to giving support and leadership to this effort, Extension must continue to conduct ongoing programs of the more traditional nature which have grown out of the needs and desires of the people served.

### CONTINUING NEEDS

The Department of Agriculture has a real interest in an effective program of Extension education to get research results to farmers and other users in understandable and usable form in order to insure a progressive agriculture providing an adequate and safe supply of food and fiber for a growing population.

For example, Extension has been working diligently to shorten the time lag between the release of new disease-resistant varieties of crops and their widespread use and the proper use of fungicides and pesticides in farm crop production. But the job in this area is by no means complete. Farmers continue to experience extensive losses from both plant and animal pests and diseases.

Equally important, and perhaps even more complex is the need for an effective educational program which will enable farmers better to analyze their farming opportunities and problems from the economic standpoint. With the increasing capital requirements in modern day agriculture, higher cash operating costs, and attendant greater economic vulnerability associated with mistakes, farmers must be sure of the soundness of their capital and operating investments. This calls for educational programs of a different and more intensive type than those required to get a new farm practice understood and applied. It requires educational leadership of the highest type and more intensive efforts with individual farm families than is required with respect to individual farming operations.

Extension is making progress in this challenging and important area but much more needs to be done.

### 4–H CLUB WORK

Our 4–H Club work is the next topic. It is estimated that fewer than 15 percent of our farm youth can expect to become owners or operators of commercial farms. Many of these youth will find their greatest opportunities in the nonfarm side of our agriculture, while others will move into the nonagricultural segment of our economy. Those with a scientific bent need guidance and encouragement in training for careers in the sciences—natural, physical, and social. The 4–H Club programs are being redirected to help those young people with career exploration. The Extension Service is also giving added attention to getting more of the "why" of science into 4–H work to balance the outstanding job being done on the "how" or practical side.

### HOME ECONOMICS PROGRAMS

Now, for the home economics programs. In all facets of Extension, increasing attention is being paid to basic teaching—the decision-making process. Through the application of the many disciplines in home economics, millions of homemakers are being helped to plan the kind of homes, and family and community living, they hope to enjoy. Today's homemakers are confronted with many complex problems as a result of the accelerated tempo of our age and they look to the cooperative extension service for practical help in reaching solutions. Requests from homemakers for assistance from county home demonstration agents have risen about 30 percent since 1954, with more than 7,400,000 families seeking assistance in 1958.

### FEDERAL EXTENSION SERVICE

The Department's responsibilities and interests in this cooperative undertaking, as you know, are administered through the Federal Extension Service. Although small in size, this is a key unit provid-

ing national leadership and assistance directed to helping the States adjust programs and services to national and regional trends of major significance. It helps the States adjust their methods and procedures to insure maximum efficiency and productivity from the use of resources available and serves as liaison between the Department and the States with respect to direct departmental responsibilities and programs for which educational support is essential to insure farmer understanding.

Present funds do not now permit the Federal Extension Service staff to render to the States the services for which they are asking and for which they have need. If Extension is to avoid spreading its resources so thinly that it serves none of its responsibilities well, the Federal staff should be strengthened in order to provide more effective assistance. Several areas are not now served as fully as they should be by the Federal Extension Service in keeping with its responsibilities and strategic position in insuring an effective and productive service throughout the Nation. The new positions requested will help the Federal Extension Service more nearly provide the help and leadership the States are requesting in some of the more important areas. At the same time, such strengthening of the Federal Extension Service staff will enable it better to meet the educational responsibilities of immediate and direct concern to the Department.

We commend the recommendations for appropriations in support of the Extension Service for your careful and understanding consideration. We consider them sound and in the best interest of both the Nation's agriculture and the general public welfare.

Mr. Ferguson and members of his staff are here to discuss further the work of the cooperative extension service.

Mr. WHITTEN. Do you have a general statement, too, Mr. Ferguson?

## GENERAL STATEMENT OF THE ADMINISTRATOR

Mr. FERGUSON. Mr. Chairman and members of the committee, I appreciate this opportunity to appear again before this committee to discuss with you the work of the cooperative extension service.

I appreciate that the members of this committee are quite familiar with the functions and responsibilities of the Extension Service.

You are intimately aware of the rapid technological and economic changes which have been occurring during the past decade and a half. You are also keenly aware of the great import of these changes for the well-being of rural people and the adjustments which farm families are having to make to keep their operations on a sound basis. Today as never before the business of farming demands the application of the most recent developments in science.

It is imperative for instance that all farmers better understand the fundamentals of soil and animal science. This need has taken on added importance with the rapid development of new chemicals and biologics necessary to efficient production. Each product must be used with the greatest of care which can come only from a thorough understanding of its nature and its proper use. An example of the effect of a stepped-up educational effort is found in the reduction of the occurrence of penicillin in market milk. This problem was brought to the attention of Extension in 1956 following a survey by the Food

and Drug Administration. It resulted in immediate action by the Federal Extension Service to encourage and assist State extension services to intensify their efforts in teaching better methods of mastitis control including the safe use of penicillin. By 1959 the incidence of this biologic in market milk had been reduced by 68 percent below the 1955 level.

Rather than dwell at length on the traditional work of Extension in assisting farmers in the application of research findings, I would like to report upon some major and significant adjustments the Extension Service is making in its programs and services in order better to serve rural people with their most pressing problems.

### FARM AND HOME DEVELOPMENT

Substantial progress has been made in meeting the needs of many farm families through farm and home development. This more intensive method, which we have discussed with you on previous occasions, helps farm families make sound decisions in putting to work the latest and newest technology in conjunction with sound management to insure ongoing profitable efficient farm operations. County agents reported working with nearly 70,000 farm and home development families in 1958. That is an increase of 9 percent over 1957 and 56 percent more than 1955. Of this number 12 percent were young families getting started, 18 percent were families who had not worked closely with Extension previously, and 32 percent could be classed in the low-income category. In addition to these 70,000 families another 74,000 families were assisted in the introductory stages of farm and home development last year. A comprehensive five-State, 5-year study of this method will be available next year. Preliminary data show a remarkable improvement in the income of participating families. Typical is the data compiled by the Indiana Extension Service in its work through the "unit" or "farm and home development" approach.

Each of the 3,000 Indiana farm families enrolled carefully keeps a farm and home record. The first 200 records summarized for 1958 show an average increase in cash income of $1,700 per farm over 1957. The average for all farmers in Indiana was $113 over 1957.

For this particular method of extension work and under Indiana conditions it appears that for every extension dollar expended on farm and home development work the farm cooperators increased their cash income by $10 and paid to the Treasury about $2 in additional income tax. Similar encouraging data have come in from Michigan, Wisconsin, Arkansas, Minnesota, Mississippi, Louisiana, New York, and Texas. Records from these nine States show that farm and home development families increased their net income an average of over $1,000 last year over 1957.

### MARKETING

There is general agreement that marketing efficiency has not kept pace with efficiency in production. Extension efforts in the field of marketing have been intensified in recent years and a greater share of Extension's resources are being devoted to putting research findings into the hands of those responsible for marketing, transporting, processing, merchandising, and utilizing farm products. With the assistance and leadership of Federal Extension workers, the States are

training and putting into the field the strongest marketing staff in Extension history. While much remains to be done the current effort is producing good results.

As an illustration, the extension potato marketing specialist in Maine, working with representatives of the Bangor & Aroostook Railroad and potato packers and shippers, obtained adoption of a method of packaging and loading potatoes in freight cars which resulted in a savings of 7 cents per hundred pounds over traditional loading methods, or a savings to the industry of approximately a million dollars annually.

### RURAL DEVELOPMENT

Through the rural development program increased effort is being directed to many of our rural communities which have been largely bypassed by technological and economic progress. The rural development program was brought into being to help farm families living on small or inadequate farms increase their income and level of living. Most such farmers have not participated in or benefited substantially from most of the Government farm programs. The rural development program was initiated in 1955 on a demonstrational basis and is currently under the general guidance of an interdepartmental committee, established under Executive Order 10847, comprised of the Under Secretary of Agriculture, Chairman; the Secretary of the Interior; the Under Secretary of Commerce; the Under Secretary of Labor; the Under Secretary of Health, Education, and Welfare; the Administrator of the Small Business Administration and a member of the Council of Economic Advisers designated by the Chairman of the Council. The program is designed to encourage the initiative of local groups with an assist from Government. Currently 30 States and Puerto Rico have such pilot efforts underway in 63 counties and 9 areas affecting in all approximately 200 counties. The initiative, leadership, and hard work of various local groups, farm, business, industry, civic, school, church, service clubs, and others have produced results far in excess of expectations. Government plays only a supporting role in this endeavor. However, because of its strategic working relationships, Extension is in a position to work with all groups, organizations, and Government agencies which are asking Extension to assume the leadership role in working with local and State rural development committees.

Pilot effort results in the past 4 years clearly reveal that the rural development program can do much to improve the welfare of residents of rural areas where, due to underemployment, many capable people have not been able to pull their full weight in the Nation's growing economy.

Additional local employment in new or expanded small industries, recreation, and so forth, is improving the income of many families and is permitting them to remain as residents rather than moving to large industrial centers.

### HOME ECONOMICS

Our next subject is "Home economics." Extension is not concerned entirely with efficiency of agricultural production and distribution. Extension workers in the field of home economics are alert to the fact

that the circumstances surrounding homemakers are changing as drastically as are those affecting farmers. In a climate of economic growth, homemakers look to Extension for educational guidance not only with the ever-present problems of balancing income and family expenditure, nutrition, family health, safety, and so forth, but with the many new problems arising from the impact of off-farm influences on family living. A growing proportion of women in the rural communities are gainfully employed in off-farm work. This is resulting in more demands for assistance in new homemaking technology and management. By continuous and vigorous appraisal and adjustment of its program in family living, Extension continues to make a marked contribution to a growing audience of homemakers.

### 4–H PROGRAM

The 4–H program continues to reach an expanding audience of young people. Two and one-quarter million young people are currently enrolled. In addition to its traditional training in fields relating to farming, homemaking and citizenship, extension workers recognize the importance of encouraging and assisting boys and girls to explore and analyze various career opportunities. The great majority of the young people growing up on farms today will make their livelihood in off-farm occupations.

The Nation's need for future scientists is finding a solid response in 4–H Club work. A recent national 4–H conference participated in by leading scientists is concrete evidence of the effort being made in this direction. This meeting of extension administrators, State 4–H leaders, and outstanding scientists is another example of extension's educational advance in an age of rapid and profound change.

### PROGRAM PROJECTION

Extension is keeping its program up-to-date and geared to current situations through a process known in Extension as program projection. This approach involves helping people to inventory their resources, both those in being and those which are potential, as a basis for developing programs better to meet current and future needs. The resources to be inventoried are not alone those of soil, water, and other natural resources, but also human and economic resources such as capital, credit and markets, as well as institutional and technical services. All of these various factors must be evaluated realistically if people are to adequately appraise their current positions and realize what it takes to attain their goals. This requires careful consideration of production trends, markets, and marketing methods for farm products, and the competitive position and future potential of their products. In economically disadvantaged areas it means, in addition to consideration of improvements in local agriculture itself, exploring the industrial and recreational potential for adding to income of farm families. It also includes taking steps to see that something is done to secure that additional income. In keeping programs up-to-date, through this means, Extension helps people both as individuals and as communities to capitalize on current opportunities and to plan for the future. These are but a few ex-

amples of significant adjustments being made in extension programs in line with the rapidly changing needs of rural people.

BUDGET INCREASES

The budget request includes an increase of $2,865,000 for payments to States primarily to strengthen and expand Extension's efforts in the rural development program. The increase will provide for additional staff, primarily at the county or area level, to carry the knowledge and experience gained from pilot operations into other areas.

The demands on Extension workers continue to increase. At no time in history has the demand been as great for well-trained, well-qualified, competent personnel. The competition for capable people continues. Most States have been able to increase salaries in the past few years with the result the rate of turnover has decreased and it has been possible to attract high caliber people. These increases were made possible through increases in appropriations from both State and Federal sources. However, there are still many States where the need for salary increases is still acute and adjustments will be necessary in order to recruit and hold top quality talent.

Extension workers are attaining higher levels of professional proficiency. Higher academic standards are being applied by the States in the process of selecting new employees. Substantial strides are being made both in inservice training and graduate work.

While progress is significant in this area much more must be done. If Extension is to fully meet its responsibilities it must have a staff with the highest qualifications available.

The Congress in creating the Extension Service recognized the need for a close working relationship between the U.S. Department of Agriculture and the States. Under this arrangement the value of which has been proven by a half century of service, the Department must provide the kind of leadership which can only come from an experienced, well-qualified staff. The Federal Extension Service must maintain a staff of well-trained personnel, technically qualified in the fields of administration, supervision, and subject matter. Because of increased costs including salary increases in the past 5 years without comparable increase in appropriation, the Federal Extension Service staff is being depleted to a point where assistance to the States is falling below essential minimum standards. This inadequacy is being reflected in the inability of the Federal Extension Service to meet many of the urgent requests from the States for assistance and leadership.

The requested increase of $150,120 will provide for salary and expenses of additional staff in areas of the highest priority. It also includes necessary amount for employer contribution to employee health benefit plans for Federal Extension Service employees.

The increase of $286,625 for employer matching contribution to the Federal retirement fund is necessary to match anticipated increase in agents' contribution to the fund.

REVISED PROCEDURE FOR DISBURSING FUNDS TO STATES

Effective with the current year's appropriation, we are proposing to alter our administrative practice so that the funds allocated to the States under the Smith-Lever Act remain available to them until expended. This will permit program operations to be planned over a longer period of time with greater stability, resulting in more effective and efficient use of funds. This procedure is in keeping with a Comptroller General's decision on the handling of similar funds by another agency.

We shall be glad to discuss any phases of extension work in which the committee is particularly interested.

Mr. WHITTEN. Thank you, Mr. Ferguson.

I am sure I speak for this whole subcommittee when I say that we all very thoroughly appreciate the fine work of the Extension Service through the years. We are strong believers in it.

Personally, I feel that it is and should be the backbone of all the various Government agencies in the various counties—agricultural agencies. I know that in a number of counties, including my own, the county agent is the hub around which the various other activities revolve. I think it is very good when that relationship exists.

PAST INCREASES IN FEDERAL PAYMENTS TO STATES

I am going to ask for some information here that I think circumstances require us to request. The record shows, Mr. Ferguson, that this committee asked the Department to prepare the bill which later resulted in taking off the ceiling on the payments to States for extension and experiment stations some years ago. In the last 8 years, the Congress has increased the Extension Service by about 90 percent.

During that same period, the Federal Government has increased the payment for the experiment stations 150 percent.

Now, for the record, am I not correct in saying that the Extension Service is not under the supervision of the Department of Agriculture? That is, it is not controlled by the Department of Agriculture; but the operations are by a memorandum of agreement between the Extension Service and the Department. Funds once appropriated by Congress to the Extension Service, then become wholly under the jurisdiction of the State extension service, which makes its determination as to where allocated. This fall I was invited to a meeting of extension folks in my area, county agents, assistant county agents. A number of them were completely surprised that Congress didn't fix their salaries. They were completely surprised when I advised them of the rather substantial increases which Congress had made in the payments to States. Am I correct that you are operating under a memorandum of agreement, with control of use of funds in the State Extension Service?

Mr. FERGUSON. That's right.

STATE EXTENSION SERVICE DETERMINES SALARIES

Mr. WHITTEN. Who makes the determination at the State level as to what part of this Federal payment to that State goes to salaries of County and Home Demonstration Agents and what part does not? Who has the responsibility?

Mr. FERGUSON. That determination is made by the State extension service.

Mr. WHITTEN. Of the State?

Mr. FERGUSON. Yes, sir.

Mr. WHITTEN. May I say further that hardly a day passes that I do not have some Member of Congress asking me to see if our subcommittee cannot do something for the salaries of county agents. Of course, we on the subcommittee are familiar with the situation, but even among the membership there seems to be very few who have any awareness that the Congress doesn't fix these extension salaries.

And the reason they don't seem to have an awareness is that their county agents, in contacting them, apparently are not aware of such a situation.

INCREASES IN FEDERAL FUNDS, 1952–60

In order that we might bring this record down to date, I wonder if you could supply for the record the increase in payments from the Federal Government, by States, by years, from 1952 down to 1960, and you might include the increases to the national office.

(The information requested follows:)

TABLE I.—*Amount of increase in Federal payments to States, cooperative extension service*

FISCAL YEARS 1952–56

| States | 1952 | 1953 | 1954 | 1955 | 1956 |
|---|---|---|---|---|---|
| Alabama | −$19,651 | $1,587 | $833 | $239,436 | $183,832 |
| Alaska | | 3,758 | | 5,249 | 7,560 |
| Arizona | 2,157 | −5,000 | | 30,084 | 23,791 |
| Arkansas | −15,996 | 369 | 1,997 | 201,481 | 111,013 |
| California | 12,491 | | | 206,194 | 186,038 |
| Colorado | −2,909 | −1,929 | 110 | 58,837 | 41,032 |
| Connecticut | −7,391 | 246 | 625 | 36,356 | 27,957 |
| Delaware | −1,845 | | | 16,230 | 9,191 |
| Florida | 12,181 | −156 | 750 | 91,881 | 66,067 |
| Georgia | −13,241 | 3,234 | 539 | 247,589 | 211,081 |
| Hawaii | −1,878 | −138 | −1,842 | 24,556 | 23,320 |
| Idaho | 531 | | | 42,331 | 35,394 |
| Illinois | 204 | 4,500 | 170 | 224,697 | 166,906 |
| Indiana | 5,012 | 237 | −38 | 186,954 | 162,373 |
| Iowa | −2,520 | 650 | 1,220 | 210,701 | 146,528 |
| Kansas | −7,271 | 15,980 | 2,700 | 122,159 | 102,671 |
| Kentucky | −4,824 | 1,451 | | 253,726 | 195,655 |
| Louisiana | −10,952 | 1,118 | 450 | 181,448 | 116,614 |
| Maine | −3,922 | −4,100 | 4,128 | 40,596 | 47,493 |
| Maryland | −6,075 | −2,750 | −974 | 82,163 | 60,438 |
| Massachusetts | 23,320 | 1,917 | 383 | 65,057 | 47,500 |
| Michigan | 17,080 | 100 | −3,330 | 249,931 | 179,227 |
| Minnesota | 2,694 | −2,525 | 1,300 | 182,919 | 148,314 |
| Mississippi | −15,417 | 12 | 700 | 248,063 | 187,338 |
| Missouri | 1,631 | 1,531 | 689 | 211,247 | 173,937 |
| Montana | 488 | 38 | 762 | 44,935 | 50,671 |
| Nebraska | −9,831 | 485 | 1,515 | 100,075 | 75,095 |
| Nevada | 426 | | | 5,333 | 42,525 |
| New Hampshire | 2,089 | 857 | 278 | 20,133 | 14,455 |
| New Jersey | −6,441 | | | 67,364 | 45,680 |
| New Mexico | −4,617 | −537 | 1,325 | 41,461 | 43,946 |
| New York | 9,788 | 450 | 3,550 | 211,118 | 160,795 |
| North Carolina | 24,357 | 3,998 | 3,217 | 360,583 | 276,120 |
| North Dakota | −1,913 | −2,338 | 2,538 | 64,961 | 46,389 |
| Ohio | 15,702 | 5,300 | | 272,925 | 225,341 |
| Oklahoma | −33,420 | 2,754 | −1,050 | 173,703 | 107,341 |
| Oregon | 14,118 | −10,144 | 9,141 | 88,337 | 62,228 |
| Pennsylvania | −6,932 | 3,328 | −1,621 | 283,200 | 229,381 |
| Puerto Rico | 26,875 | 30,215 | −10 | 339,207 | 166,269 |
| Rhode Island | 5,733 | 200 | −1,650 | 11,727 | 6,908 |
| South Carolina | −6,602 | −1,003 | −523 | 174,596 | 139,304 |
| South Dakota | −4,718 | −2,650 | 3,200 | 62,134 | 44,639 |
| Tennessee | −4,809 | 5,619 | 2,381 | 259,218 | 197,690 |
| Texas | −37,411 | −2,748 | 1,405 | 354,243 | 265,540 |
| Utah | −1,164 | 725 | −1,106 | 27,207 | 41,177 |
| Vermont | −95 | 700 | 200 | 27,077 | 21,097 |
| Virginia | 7,419 | 1,955 | 3,020 | 219,237 | 143,116 |
| Washington | 7,318 | −890 | 2,500 | 90,652 | 104,337 |
| West Virginia | 1,278 | 115 | −2,225 | 135,479 | 101,914 |
| Wisconsin | 6,491 | 5,600 | −9,200 | 195,752 | 150,544 |
| Wyoming | −287 | −3,300 | | 22,880 | 19,032 |
| Unallotted and contracts | −50,659 | 308 | 70,163 | 313,249 | 357,196 |
| Total | −83,408 | 59,129 | 98,220 | 7,426,671 | 5,800,000 |

*FISCAL YEARS 1957–60 AND THE INCREASE FOR THE PERIOD 1952–60, INCLUSIVE*

| States | 1957 | 1958 | 1959 | 1960 | 1960 compared with 1952 |
|---|---|---|---|---|---|
| Alabama | $136,690 | $28,981 | $95,409 | −$1,469 | $665,648 |
| Alaska | 7,438 | 14,507 | 12,742 | ---------- | 51,254 |
| Arizona | 15,330 | 54,646 | 20,234 | 20,700 | 161,942 |
| Arkansas | 132,987 | 37,761 | 88,048 | 10,522 | 568,182 |
| California | 145,182 | 15,102 | 96,325 | 4,600 | 665,932 |
| Colorado | 50,239 | 4,985 | 30,585 | 14,100 | 195,050 |
| Connecticut | 16,385 | 4,693 | 15,632 | −260 | 94,243 |
| Delaware | 17,922 | 5,623 | 9,513 | −1 | 56,633 |
| Florida | 47,265 | 28,954 | 20,943 | 9,333 | 277,218 |
| Georgia | 202,150 | 44,946 | 103,537 | −11,414 | 788,421 |
| Hawaii | 12,775 | 5,104 | 10,519 | ---------- | 72,416 |
| Idaho | 20,940 | 6,002 | 17,344 | 565 | 123,107 |
| Illinois | 129,799 | 20,507 | 97,784 | −600 | 643,967 |
| Indiana | 111,144 | 11,052 | 87,571 | 7,934 | 572,239 |
| Iowa | 99,595 | 18,059 | 81,194 | −2,000 | 553,427 |
| Kansas | 83,748 | 15,856 | 49,707 | −10,000 | 375,550 |
| Kentucky | 196,837 | 13,431 | 122,593 | 7,781 | 786,650 |
| Louisiana | 123,794 | 8,839 | 79,588 | −5 | 500,894 |
| Maine | 32,389 | 6,905 | 17,283 | −2,282 | 138,490 |
| Maryland | 46,511 | 17,867 | 19,043 | 4,369 | 220,592 |
| Massachusetts | 34,744 | 12,803 | 20,292 | 9,000 | 215,016 |
| Michigan | 189,538 | 10,938 | 90,581 | 6,591 | 740,656 |
| Minnesota | 112,654 | 31,775 | 67,530 | 18,189 | 562,850 |
| Mississippi | 170,766 | 52,153 | 98,432 | 1,140 | 743,187 |
| Missouri | 200,797 | 29,554 | 106,722 | 10,534 | 736,642 |
| Montana | 20,452 | 14,439 | 14,817 | 16,709 | 163,311 |
| Nebraska | 66,103 | 25,999 | 35,317 | 8,712 | 303,470 |
| Nevada | 12,670 | 6,375 | −2,377 | −6,100 | 58,852 |
| New Hampshire | 10,364 | 1,790 | 8,948 | −28 | 58,886 |
| New Jersey | 27,916 | 4,764 | 23,822 | −1,000 | 162,105 |
| New Mexico | 73,982 | −4,723 | 30,447 | −7,946 | 173,338 |
| New York | 106,908 | 18,777 | 97,137 | −10,317 | 598,206 |
| North Carolina | 297,787 | 14,171 | 163,516 | −8,264 | 1,135,485 |
| North Dakota | 30,935 | 6,899 | 36,706 | 11,992 | 196,169 |
| Ohio | 139,620 | 24,515 | 108,345 | 4,009 | 795,757 |
| Oklahoma | 135,486 | 14,191 | 48,864 | 9,800 | 457,669 |
| Oregon | 59,408 | 23,784 | 28,478 | 757 | 276,107 |
| Pennsylvania | 144,872 | 41,433 | 105,350 | 9,860 | 808,871 |
| Puerto Rico | 149,051 | 21,150 | 53,570 | 30,345 | 816,672 |
| Rhode Island | 5,198 | 1,033 | 3,926 | −59 | 33,016 |
| South Carolina | 130,580 | −3,488 | 94,778 | 3,412 | 531,054 |
| South Dakota | 34,923 | 5,736 | 26,277 | −4,149 | 165,392 |
| Tennessee | 179,632 | −3,487 | 111,060 | 25,416 | 772,720 |
| Texas | 227,330 | 7,332 | 199,275 | 71,109 | 1,086,075 |
| Utah | 13,504 | 19,350 | 12,396 | ---------- | 112,089 |
| Vermont | 11,686 | 5,403 | 16,013 | −2,280 | 79,801 |
| Virginia | 150,512 | −10,748 | 95,592 | 8,302 | 618,405 |
| Washington | 44,799 | 40,114 | 32,629 | −865 | 320,594 |
| West Virginia | 96,511 | 24,899 | 53,058 | 2,886 | 413,915 |
| Wisconsin | 120,779 | 20,145 | 89,423 | −5,099 | 574,435 |
| Wyoming | 33,243 | 8,673 | 17,316 | 1 | 97,558 |
| Unallotted and contracts | −271,870 | 20,431 | 36,166 | −254,530 | 220,454 |
| Total | 4,390,000 | 850,000 | 3,000,000 | 0 | 21,540,612 |

TABLE II.—*Increases*

| Fiscal years | Federal Extension Service [1] | Penalty mail for Extension agents and State extension directors [1] | Retirement costs for Extension agents [1] |
|---|---|---|---|
| 1952 | +$9,566 | ---------- | ---------- |
| 1953 | −116,730 | ---------- | ---------- |
| 1954 | +23,022 | [2] +$1,685,000 | ---------- |
| 1955 | +572,467 | +257,500 | ---------- |
| 1956 | +58,847 | −292,500 | ---------- |
| 1957 | +20,000 | +514,000 | ---------- |
| 1958 | +160,805 | ---------- | [2] +$5,195,735 |
| 1959 | +89,835 | +327,307 | +283,640 |
| 1960 | −8,100 | ---------- | +195,000 |
| Total increase | +809,712 | +2,491,307 | +5,674,375 |

[1] Adjusted for comparability with the current appropriation structure.
[2] Initial appropriation.

Mr. WHITTEN. Now, if it is not too much trouble, we would like to have you show us how the various States handled these increases which they have got for that period of time; how much went to new personnel; how much went to increasing salaries of county agents or extension agents. In other words, I want the picture, because apparently some States have done it one way and some another, but we are having so many contacts by other Members who seem to think that we have kind of let the county agents' salaries go by the board, when certainly it is a matter beyond our control.

(The information requested follows:)

TABLE III.—*Use of increased Federal funds for fiscal years 1952–60, inclusive*

| | Amount of increase | Salary and expense for new personnel | Salary increases [1] | Clerical and operating costs |
|---|---|---|---|---|
| Alabama | $665,648 | $452,738 | $187,477 | $25,433 |
| Alaska | 51,254 | 16,567 | 34,449 | 238 |
| Arizona | 161,942 | 57,032 | 94,447 | 10,463 |
| Arkansas | 568,182 | 357,224 | 168,907 | 42,051 |
| California | 665,932 | 433,717 | 7,490 | 224,725 |
| Colorado | 195,050 | 101,140 | 89,910 | 4,000 |
| Connecticut | 94,243 | 77,294 | 5,852 | 11,097 |
| Delaware | 56,633 | 35,120 | 21,513 | |
| Florida | 277,218 | 222,590 | 32,751 | 21,877 |
| Georgia | 788,421 | 525,011 | 227,931 | 35,479 |
| Hawaii | 72,416 | 50,536 | 10,519 | 11,361 |
| Idaho | 123,107 | 99,957 | 21,550 | 1,600 |
| Illinois | 643,967 | 457,195 | 126,854 | 59,918 |
| Indiana | 572,239 | 426,440 | 133,084 | 12,715 |
| Iowa | 553,427 | 409,310 | 126,588 | 17,529 |
| Kansas | 375,550 | 292,865 | 67,211 | 15,474 |
| Kentucky | 786,650 | 531,470 | 244,470 | 10,710 |
| Louisiana | 500,894 | 400,506 | 100,388 | |
| Maine | 138,490 | 113,967 | 20,809 | 3,714 |
| Maryland | 220,592 | 176,455 | 40,654 | 3,483 |
| Massachusetts | 215,016 | 172,921 | 42,095 | |
| Michigan | 740,656 | 574,224 | 136,942 | 29,490 |
| Minnesota | 562,850 | 413,278 | 118,130 | 31,442 |
| Mississippi | 743,187 | 503,736 | 211,222 | 28,229 |
| Missouri | 736,642 | 491,378 | 245,264 | |
| Montana | 163,311 | 118,536 | 42,203 | 2,572 |
| Nebraska | 303,470 | 212,339 | 89,631 | 1,500 |
| Nevada | 58,852 | 51,539 | 7,313 | |
| New Hampshire | 58,886 | 44,400 | 8,590 | 5,896 |
| New Jersey | 162,105 | 132,260 | 18,323 | 11,522 |
| New Mexico | 173,338 | 88,511 | 84,827 | |
| New York | 598,206 | 462,641 | 102,283 | 33,282 |
| North Carolina | 1,135,485 | 790,496 | 309,065 | 35,924 |
| North Dakota | 196,169 | 132,522 | 61,375 | 2,272 |
| Ohio | 795,757 | 634,504 | 161,253 | |
| Oklahoma | 457,669 | 314,028 | 129,371 | 14,270 |
| Oregon | 276,107 | 241,953 | 31,591 | 2,563 |
| Pennsylvania | 808,871 | 647,215 | 154,956 | 6,700 |
| Puerto Rico | 816,672 | 686,882 | 129,790 | |
| Rhode Island | 33,016 | 24,949 | 5,609 | 2,458 |
| South Carolina | 531,054 | 341,814 | 181,109 | 8,131 |
| South Dakota | 165,392 | 104,192 | 61,200 | |
| Tennessee | 772,720 | 561,334 | 161,420 | 49,966 |
| Texas | 1,086,075 | 666,007 | 381,546 | 38,522 |
| Utah | 112,089 | 66,839 | 45,250 | |
| Vermont | 79,801 | 48,629 | 29,572 | 1,600 |
| Virginia | 618,405 | 390,359 | 215,046 | 13,000 |
| Washington | 320,594 | 240,876 | 64,226 | 15,492 |
| West Virginia | 413,915 | 314,853 | 98,012 | 1,050 |
| Wisconsin | 574,435 | 438,798 | 119,772 | 15,865 |
| Wyoming | 97,558 | 53,587 | 42,317 | 1,654 |
| Total | 21,320,158 | 15,202,734 | 5,252,157 | 865,267 |
| Unallotted and contracts | 220,454 | | | |
| Total increase | 21,540,612 | | | |

[1] The amount of Federal funds used for salary increases in relation to the total increase does not reflect the actual salary increases on a State-by-State basis because of the variations in use of increased State and county funds for salary adjustments.

Mr. WHITTEN. Now, I know the problems are great; but certainly in times of declining farm income the farmer needs all the help he can get to improve his operation and to learn better methods, along with needing some more money from some source to which I have tried to devote my attention. I do note that in this 8-year period, while the total number of personnel, I presume, has been increasing substantially with the Extension Service, at the Washington level and at the State level, the total number of farms since 1952 has dropped by 700,000. Farm population has dropped since 1952 from 24.3 million to 20.8 million, a drop of 3.5 million.

Now, I have asked that this be put in the record. Could you tell us what the increase has been in total personnel in the Washington office since 1952?

PROFESSIONAL STAFF OF WASHINGTON OFFICE

Mr. FERGUSON. We have at the present time 95 professional people on our staff. Five years ago we had 93. In 1952 we had 75.

Mr. WHITTEN. How many additional personnel would this increase provide in the present budget?

Mr. FERGUSON. It would provide for seven professional people.

Mr. WHITTEN. At the Washington level?

Mr. FERGUSON. Yes, sir.

Mr. WHITTEN. How many additional people in the field, or do you have those figures, or would you have to wait and see what the State directors might do?

Mr. FERGUSON. Roughly I would estimate that it would probably be in the vicinity of 200 to 225.

Mr. WHITTEN. 200 or 225.

Mr. FERGUSON. That would include funds for travel and supplies, stenographic assistance, and so forth.

Mr. WHITTEN. I want the record to be clear that I think the Extension Service is the hub for all of our agricultural program, and I think properly so. I think it does a real job, so I don't want to be misunderstood in this statement; but, as farm income has gone down something like $4 billion; farms have gone down about 700,000, farm population down 3.5 million; Federal employees of the Department of Agriculture have increased from about roughly 63,000 in 1952 to an estimated 84,000 in 1961.

Mr. WHITTEN. Are we kind of substituting people for farm income? I am talking about across the board. Or is it a case of some factor beyond the control of your Service, which is an excellent one? It is that this farm situation is just so terrible by reason of price, by reason of cost, by reason of one thing or another, in spite of the very fine people you have. In spite of the increasing numbers in the Department, from 63,000 to approximately 84,000, is the picture just so bad from the standpoint of price and cost that even this increasing number has been helpless to prevent farm income from dropping by $4 billion? Is that the situation?

Mr. FERGUSON. I would have to look at that. From the standpoint of persons concerned with education, in helping people make a living, a good living, and enjoying the kind of a life that we hope that they

all could enjoy each of these families has individual problems which they have to solve. We are convinced that the effort that we have been putting forth in what we call farm-home development, a method of doing extension work that we discussed with this committee some years ago, is providing those families who are cooperating with extension in this effort, a very substantial improvement in their income.

FARM INCOME

Mr. WHITTEN. Could I interrupt now? You made a broad statement, with which I will not take issue, but you said "income." Let's talk about farm income.

The fact that you talk a fellow into leaving the farm and going to Memphis, Tenn., and going to work for the Ford Motor Co.—I don't know, that might be helpful to the man, but I don't know that we are doing a whole lot in the field of agriculture; so let's talk about farm income.

Mr. FERGUSON. I would very much like to discuss this from the standpoint of farm income. "Farm and home development" as an approach to the problem of these families is an educational process. It has involved more intimate work with the family, helping them put together the management of the farm and the management of the home into an ongoing operation melding with management the technology that must go with modern agriculture, if one is going to have a sound ongoing operation.

It starts with the process of evaluating the resources that a family has. A good many families in this program have found that they did not have the resources that were necessary to operate a profitable farm operation. As they evaluate these resources they try to identify what their potential might be with the resources at hand, and determine what they might have to add in terms of land capital or other resources in order to step up their income.

Then the process through which these people go helps them evaluate the alternatives open to them.

It is true that some of these families have quit farming. Yet, that has been a very small number. Most of them have reorganized their operation, some have to acquire additional land, some have had to improve the technique of their operation. They develop and execute their own plans.

As I pointed out, there were last year 144,000 families who were engaged in this program. By next year, 1961, we will have completed a 5-year study, supported, incidentally, by a foundation, not by appropriated funds, on what happens to families when they engage in an effort of this kind.

We have some preliminary information coming in to us at the present time. For instance, in Arkansas, last year there were over 2,000 families who participated in the program. Over this 4-year period, the average net farm income rose, for these families, from $4,217 to $6,332. During that same period, the average Arkansas family farm income dropped 18 percent.

I gave you some figures on Indiana in my testimony, pointing out——

Mr. WHITTEN. I don't mean to cut you off, because certainly we will go into that later—but I wasn't directing my question to this rural redevelopment, where you have spent an average of $30,000 to $35,000 extra per county from the Federal Government, to put on this program. With that much money and that many people assisting in a given county, of course we would presume that it would help some in that particular county.

It is my recollection you have about 200 such counties out of approximately 3,000 counties in the United States. I think the Department in years past has testified that you contemplated these as pilot counties, because you recognize that to put on this same intensive program in all the counties, the cost would reach a level that would be out of line.

So I am directing my attention to that fact, and may I say that except for the Extension Service, the situation would have been worse. Except for the employees in the Department of Agriculture, the situation would be worse.

But again, now, after 8 years, with 90 percent increase in extension funds and 150 percent increase in experiment stations, and in spite of the fact that the Federal Government has hired about 20,000 more people, farm income has dropped $4 billion. So it looks to me like, as we tried to substitute education and Federal employees for farm dollars, that we are fighting a losing battle.

It is in that area that I am asking you if you put more people and more money and more education, more visitors, and still go down $4 billion in income, wouldn't you say it is time to look and see if you can substitute Federal employees for cash and price?

Mr. FERGUSON. I don't believe, Mr. Whitten, that we would actually substitute Federal employees for cash income to farmers.

Mr. WHITTEN. These figures I am quoting to you were given us by the Department of Agriculture on Monday of this week, so that is the record for 8 years.

Now, you tell me what the answer is. You spent your lifetime in this work, and it is in the educational field. That is where you know the facts and the theories and prior experiences and all the textbooks and treatises on how to farm.

Now, I would just like to know what your answer is, in view of your lifetime of work in the educational field, which means where you learn the facts of life, so far as agriculture is concerned. What would you say that we do: keep going down the present road, provide more employees and more payments to Federal personnel, or would you kind of reverse it and look at the other end of this problem?

Mr. FERGUSON. I don't know that I would be competent to judge this from a total, overall standpoint, Mr. Whitten.

Mr. WHITTEN. You can tell we are not. We have not spent a lifetime in this work.

Mr. FERGUSON. I do feel that we can be rather objective, in looking at it from the standpoint of the welfare of the individual family, and since the communities are made up of families, the more competent, the more capable those families are, the better opportunity they have to struggle with the situation as it exists.

Mr. WHITTEN. That is taken for granted.

But what I am giving you is the overall figures which your own Department has given us as to where we are now after these 8 years, and say, collectively, this is where we are.

Now, since you say you don't have the answer, I have got some real answers myself. I don't think you can handle farm income—farm income is price times volume less cost. When price is too low, taking into consideration the units to sell, or the cost, or when the cost is too high for the price you receive, or when that is out of balance, there is precious little you can do in educating people. If you cannot get much more for what he produces, and if his cost is too high, there is not much we can do. We can help him a little. We can teach him now to put his machinery in the barn and how to grease it and extend its life. We can teach him some of those things, perhaps, but we cannot do it to the point of offsetting a declining price, and a rising cost; and that is what we are trying to do.

So the point I make is, as fine as this is, and I think it would have been worse if we had not had it, that we had better look this over and I had hoped you would have an answer. An answer is a hard thing to come by.

Mr. Marshall and the other members of the subcommittee think we have some answers, but we are unable to get sufficient support, largely from the Department, to put them into effect. We go back and start improving the farmers' net income as a starting point, so your education can be used by the farmer. And once we get him where he has enough money, where he can use your education, we would have the right field in which to work. But you have been working in poor pickings, in my opinion, in the last 8 years.

Mr. ANDERSON. Mr. Chairman, would you permit me to ask a question there. You mentioned something about those of us who feel that we do have the answers. That is absolutely correct, but the trouble is that even in a subcommittee like this, dealing with agriculture, we are perhaps 5 out of 7 members who definitely disagree with the Secretary in his price ideology. There is no opportunity for the five of us to surmount the difficulties of trying to make him believe that perhaps he is a little bit wrong.

I do feel that there are some good answers in this subcommittee from men who have dealt with this subject for a good many years, and there are men on this subcommittee who are far more experienced than the Secretary of Agriculture is, and should know something about the subject. But, to me, it is pitiful that we have as Secretary of Agriculture a gentleman who is so unbending in his line of thinking that he cannot read the writing on the wall and see, for example, that a district like mine in southwestern Minnesota is slowly going down economically because of his low-price theories.

I was informed in a letter received today from a gentleman—and I have great respect for him, I have known him for years—but he tells me that small communities in my area—and he pointed out three or four specifically, Mr. Chairman—are definitely beginning to feel, right on Main Street, the effects of not having enough income to get along. His letter verifies my own conclusions because I study this constantly.

In one of my larger cities, this gentleman pointed out that there are seven practically new buildings vacant because of the fact that the income simply does not exist in that area.

Let me point out the situation on corn, on the production of corn alone, where we usually have 50 million bushel production a year in the Seventh District in Minnesota. The Secretary has succeeded in taking off at least 30 cents a bushel on the value of every bushel of corn produced in the Seventh District in Minnesota. That means, gentlemen, he has taken away from the Seventh District of Minnesota an annual gross income that should be there of $20 million, or $1 million for each of my 19 counties, and that is why, in my opinion, the farmers and the businessmen in my district are becoming more or less despondent. That is why I have been fighting so hard in behalf of farm legislation to help these good people.

They are beginning to figure: Isn't there any answer to this? And I agree absolutely with you, Mr. Chairman, regardless of what we may do through the good work of extension—I was in favor of extension way back in 1919 when I came out of the Navy, I helped our county agent—regardless of that, unless we get the price, unless we get fairly good income, Mr. Marshall, where are we in agriculture? We just cannot exist, gentlemen.

Thank you very much for letting me interject this, Mr. Chairman. I am going to do that quite frequently, gentlemen, throughout these hearings. I feel that we must do something to raise the general income of agriculture. If we do not, the prospects for the average farmer in America do not look too good, and the rural businessmen are feeling the pinch more every day.

Mr. WHITTEN. Thank you, Mr. Andersen.

### DECLINE IN AGRICULTURE STUDENTS

There is one other thing that I think perhaps you could supply—I am sure you can. I was told that in one of our leading agricultural colleges with over 4,000, probably 5,000 students, that less than 400 in this agricultural college were studying agriculture, and that of that 400, at least half of them expected to get a Government job.

In other words, they couldn't see enough future in agriculture to have any plans to really farm themselves. Would you obtain for us and put in the record the number of students studying agriculture at the various land-grant colleges and the total number of students? I am just talking about a condition. We have let agriculture get in such a shape that even in our agricultural colleges few students see any future in it, or so I am told. We will let the facts speak for themselves. I have had that statement made to me.

Mr. FERGUSON. We can get that. We do not have that information.

Mr. WHITTEN. I thought perhaps you could.

(Information requested follows:)

*Undergraduate enrollment information,[1] fall quarter or semester*

| Year | Agricultural enrollment | Total number undergraduates in institutions |
|---|---|---|
| 1948 | 45,853 | 391,656 |
| 1951 | 34,774 | 298,953 |
| 1956 | 34,528 | 384,654 |
| 1958 | 32,535 | 400,077 |
| 1959 | 31,722 | 411,437 |

[1] A report to the Resident Instruction Section, Division of Agriculture, American Association of Land-Grant Colleges and State Universities, St. Louis, Mo., Nov. 9, 1959.

Mr. ANDERSEN. Mr. Chairman, might I say in further elaboration of what I had previously said, I don't want Mr. Ferguson in any way to feel that it is a criticism of his efforts. After all, Extension can only go so far. To you, Mr. Ferguson, I have nothing to say about the general policy of price-fixing or price levels. That is within the purview of the Congress and the administration. I feel that Extension has done a wonderful job. I am proud of Extension.

But, at the same time, gentlemen, I am frankly getting to the point where I am becoming discouraged with the whole agricultural picture.

Mr. WHITTEN. I get so busy with my mind on certain facts, that I frequently fail to make statements like that, even though I fully mean to. I would like for the record to show that I think you have done a fine job, Extension has, and you as the Director of Extension, and the director of extension in my own State has done a good job under considerably trying circumstances which we all have, and that is, not enough money ever to meet all the demands. All of us have to do the best we can, including the subcommittee.

I want to say that for the record, too.

RURAL DEVELOPMENT PROGRAM

Now, pointing to the rural redevelopment program and, as I say, there have been some improvements, but I am told that in these 200 counties, the reason your figures and reports show as good as they do, is that in many cases your group selects people that have already been trained by Farmers Home Administration and the ones who sign up for your rural redevelopment programs are usually the best and most well-to-do farmers in the county. They, on a comparative basis, probably need less attention. You naturally take the best, with a background of training, and get them to sign up for contests. That gives you a much rosier picture than if you had drawn names out of a hat and set out to take whatever showed up. That statement comes from folks who know about some of your counties.

Of course, you can do that. I point out one thing here that would enable you to show a much rosier picture. I am advised that the Secretary of Agriculture has authorized the Farmers Home Administration to make loans to people in rural redevelopment counties where there are people in these counties that have all this benefit and can borrow

money elsewhere. The same type person is ineligible in other counties. I believe that unsound, if not illegal.

I do not believe Mr. Benson, Mr. Morse, or Mr. Hansen has the right to prohibit loans in one area where they allow the same loan in another area of the United States.

Mr. ANDERSEN. At that point, Mr. Chairman, if you will permit, I think we have already requested, Mr. Peterson, that the Department be advised that we are going to look into that very thoroughly, because this subcommittee has never had any intention of permitting two different classes of borrowers under the Farmers Home Administration. All farmers must be treated equally under the law.

In our opinion, it is just the one organization. Certainly, I think, except in disaster areas, it would be very unfortunate if we divided the work of that great organization, Farmers Home Administration, and show preference to one group or one part of our country against that of another.

Mr. PETERSON. Mr. Andersen, I am not informed as to the procedures being used by the Farmers Home Administration. I am, of course, informed of the law to which you make reference, which permits a distinction as between disaster areas and nondisaster areas. I am not informed as to the other matters to which reference is here made.

Mr. WHITTEN. I in turn got in touch with Mr. Hansen.

Off the record.

(Discussion off the record.)

Mr. FERGUSON. Could I come back and comment on one point?

Mr. WHITTEN. Certainly.

### DISTINCTION BETWEEN FARM AND HOME DEVELOPMENT AND RURAL DEVELOPMENT

Mr. FERGUSON. I am not quite sure that we are totally communicating as to the distinction between farm and home development and rural development.

Mr. WHITTEN. Perhaps not.

Mr. FERGUSON. I would like to clarify for the committee some extension jargon, if I may use that term. First, this term, "farm and home development," which we have used and about which we talked to you about 5 or 6 years ago, is simply an intensive method of doing extension work. A comment was made as to who these people were, how they were selected, and so forth. In the early stages of this program, these people were selected by committees until the program could get going. That was the judgment of local people as to how it should be done.

To a very large extent in some States, the families are some of the younger ones. For instance, 18 percent of the families with whom we worked last year, had had no previous contact with extension; 12 percent were young families who were just getting started in farming; 32 percent were in the lower one-third of the farm income group; and 19 percent of these were part-time farmers.

Mr. WHITTEN. Could I interrupt there just for clarification? Thirty-two percent in the small income group? That figure, left alone, might result from the fact that they had a small farm. It

doesn't necessarily mean that they were not good farmers, compared with others in the county, but it could easily come from the fact that their capital was less, or the size of their operation was less.

Mr. FERGUSON. Their income was compared with others in that particular community. Their family income was considered in the lower third.

The reason I point this out is that I think we are confusing two efforts. "Farm and home development," or the "unit approach" is extension education in farm and home management combined with the technology of good farming for the assistance of such families as want this help and can use it. The rural development program, on the other hand, has somewhat of a different focus. True, for those families who may want to continue to make their living farming, and buy a farm and so forth, the farm and home development effort is available to them.

But the rural development program is concerned also with organizing and helping local people organize, to do for the community very much the same thing that a family does on their own farm. That is, to inventory their own resources. They begin to see what their goals might be, what potentials this community might have, and then develop programs to meet these goals and potentials.

Now, Mr. Kepner is with me, and he has been very close to the rural development program. Kep, I would like to have you add to my comments.

Mr. WHITTEN. I will be glad to hear from him, but could I say in advance, however, that my line of questioning did not mean that this doesn't do some good. I am sure that if we could have it in every county in the country, that it would do some good. Your description of what you seek to do is exactly what I have always thought the home demonstration agent and the county agent were supposed to do, within the limits of their physical capacity. If I gather the facts right, this is an intensification in the same general area that the average county and home demonstration agent tries to do with more people and with less physical capacity, or too few hours in the day to do the job.

So I am sure that that is so.

Now, in addition to this, you have all these departments pushing in these 200 counties. You have got money for all these other agencies. If Extension is worth anything, and I think it is very fine, if the Farmers Home Administration has any place in the sun at all, and I know they do some good, when you threw all that weight in 200 counties, if you didn't show some improvement, my goodness, you would be indicting your own services.

But the point I was making is that after all your efforts have been made, and all your progress in all these things, farm income is down $4 billion. So it leads me to wonder whether we can ever solve the farm problem through this means, however fine Mr. Kepner and all your personnel may be.

Mr. KEPNER. If I may, Mr. Chairman, I would like to add to what Mr. Ferguson said, and the comment you made that we might assume that the county agent and the home agent have these responsibilities and opportunities prior to the inauguration of——

Mr. WHITTEN. Do we have to assume that? Here is the head of it. If I am wrong about that, let's don't start off on an assumption. Are they supposed to, or are they not?

Mr. KEPNER. They are not.

Mr. WHITTEN. They are supposed to help by providing information. The county home demonstration agent is not supposed to organize rural communities and to help them in looking for those things that would improve. The county home demonstration agent is not supposed to talk to them about the wisdom of handling a family budget. Are you right about that?

Mr. KEPNER. We are not talking about the same thing, Mr. Chairman. The distinction I am trying to make is that our county farm and home agents are employed originally and have maintained that position throughout, that their first responsibility is to farm people with the type of thing we are talking about. The distinction I am trying to make is that in connection with the rural development program, we are trying to use the county agent, under the rural development funds, to serve as a catalyst, educator, stimulator, organizer, to get the people to look at their own problems as an entire community, county, or trade area.

Mr. WHITTEN. Mr. Kepner, let me say to you, you have just described my county agent and home demonstration agent exactly. That is what they have been doing for 20 years, and doing it very, very well, too.

I thought he was carrying out his duties. If he is violating any of the rules, I want you to tell him. I don't want him to stop, though.

Mr. KEPNER. I shall not undertake to appraise the operation of your particular county agent because I am not personally familiar with it, but there is a line of distinction, to me at least, in what we are talking about. Maybe to others that is not a clear line of distinction. But in the rural development effort, rather than working with individual families, and, off the record——

(Discussion off the record.)

Mr. KEPNER. In the rural development program, these workers, these special workers, rather than working with individual families as such, their primary function is to organize the entire community to look at the potentials there industrially, to look at opportunities that are not capitalized on as an area, not as an individual farm, to see whether or not we cannot create a climate wherein those living in that area will have greater oportunities, and will not have to move elsewhere, in order to gain a livelihood.

As a result, we are getting the chambers of commerce, the businessmen, and the farmers all joining forces here to take a look at their total trade area, determine what the weak spots in it are, in terms of providing income oportunities as one phase, to take a look at what the practical potentials are in better balancing the economy of the area, and providing greater employment opportunities.

Sure, the Extension agents, regular, are continuing to work with the individual families, trying to help them improve their farming operations, programs, supplemented with some other employment, if their units are just absolutely too small, and they want to stay on them. But the agents we have working under the rural development program have a much broader assignment than our regular county agent staff.

There is no prohibition—we will be in agreement on this—there is no prohibition against our regular staff doing that type of thing, Mr. Chairman, but the workload that our people carry, the understanding on which they are employed by the local county government bodies, calls for their spending their time working largely with the individual families.

We have a distinction, at least in my mind, in the type of assignment that is involved.

Mr. WHITTEN. Lets put it this way: The good county and home demonstration agents that I have had the privilege of knowing, have all through the years given of their time to the same type things. May I say again, that their workload has been such that they have not had the time that they might like to have had, and all of that, but it is right down the line.

The other thing that I would mention here is that I believe Mr. Ferguson said that at the outset in selecting these families, you followed such-and-such a procedure.

I talked to people in these countries, and they say that the families have been selected. Mr. Ferguson says they were selected. Were they or were they not?

Mr. KEPNER. That is farm and home development.

Mr. FERGUSON. I am trying to get the distinction here between farm and home development and rural development as we think of it.

Mr. WHITTEN. Is that under rural redevelopment, too?

Mr. FERGUSON. No.

Mr. WHITTEN. What is that?

Mr. FERGUSON. Farm and home development, as we visualize it, is an educational effort designed to help individual farm families, bring the best management and technology to bear on the problems of their particular farm.

Whereas, the rural development approach is more of a community development approach, the industrial development approach. The evaluation of the resources of the community, or the trade area, to see what is possible to bring into that community in the way of additional employment or income opportunities, and we have some very excellent examples.

TIPPAH COUNTY RURAL DEVELOPMENT PROGRAM

Mr. KEPNER. I believe Tippah County is one.

Mr. WHITTEN. It is.

Mr. FERGUSON. What was the increase in all farm employment in Tippah County? It runs, in my mind, around 700 additional jobs that were provided. These people continued to live on their farms, Mr. Whitten. Some of them took part-time or full-time jobs.

Mr. WHITTEN. Mr. Ferguson, may I say Tippah County is in my district. It is a fine county, largely of small farms, and with the change in farming they had lots of problems that were, let's say, worse in that county than in some others. Much of my home county particularly where I grew up is very similar.

But may I say that these things that you are claiming credit for are like the investigation we had a few years ago about the coordination of the work of the Extension Service, the Soil Conservation Serv-

ice, and the ACP. We found that neither of these services claimed a third of it, but each service listed the whole. I don't blame them.

Now, Tippah County being in my district, I can assure you that the local board of supervisors, who approved the bond issues to bring in Mr. Inman, claimed their share. The voters who voted to bond the county to help promote industry claimed their share. The attorney for the board and the mayor and the people in the community claimed their share. I am sure your people helped too.

May I say, the adjoining county where you do not have any rural redevelopment has had a tremendous development along the same lines without your program.

The county adjoining doesn't have all of the problems that Tippah has, so we cannot exactly look and see that these things happen, and claim credit for them.

What has happened to Tippah County to a great degree has happened in just about every county in Mississippi. Believe me I am proud of the progress in Tippah County. I suspect really the people of the county deserve the credit.

Mr. FERGUSON. I want to make this point very clear, Mr. Whitten. I would not want you or the committee to feel that this was a case of Extension taking credit for all the good that happened.

Mr. WHITTEN. You know that we in politics don't deny credit, and I don't know of any man in public office that has ever denied credit where it was something good, so I wouldn't ask you to deny it.

Mr. FERGUSON. I would like to say, however, that Extension, in connection with the rural redevelopment program, has been looked to and asked by many organizations to assume leadership in bringing to bear the best efforts of various groups and organizations; and to the extent that Extension has succeeded in doing that, they have materially aided, let's say, the board of commissioners, the chamber of commerce, business groups, civic organizations, and so forth, to put their best shoulder to the wheel and move forward in this effort.

Mr. WHITTEN. Mr. Ferguson, I am 100 percent in agreement with you, but after you have done all this for 4 years, and after we have had all these things and farm income is still down $4 billion, I just raise the question whether following this track is going to get us there fast enough, or whether we are all going to be broke on this approach before we get the job done.

The more we speed up, the more farm income goes down. I don't think it is our fault. I think except for your effort and the efforts of others, it would have been worse.

Mr. PETERSON. Let us agree that this program will of itself have no effect on total farm income, either the gross or the net. Whatever the farm income, we think this program will enable people who participate in it to acquire a larger share than they would otherwise acquire, had they not the benefit of this kind of a program.

I think no one will claim, no one that I know of, anyway, that this program itself will have any effect upon the total of farm income, but whatever that total may be, we think this program will enable people, by appraising their own resources, to get a better share of it than they would otherwise get, and whatever they get in gross will also enable them, through better management, to have a larger portion of whatever their gross is in the form of net.

Mr. WHITTEN. Well, certainly I don't want the record to show that I dont think this has helped some. The question is whether it is possible through this means, to solve the problem fast enough to be worth its cost and all that.

INCREASED FUNDS FOR RURAL DEVELOPMENT

May I ask one more question, and then I shall pass the witness.

Are there other increases requested in this budget for Farmers Home, or any of the other agencies, or is this the only one for the rural redevelopment program? I would like for the record to show the money that they have had for the various agencies in the current fiscal year, and back through the years. Then there is this substantial increase for the Extension Service, for that same program.

Do we have comparable requests for increases for these other agencies?

Mr. GRANT. No, Mr. Chairman, this is the only appropriation that involves an increase specifically for the rural development program.

Mr. WHITTEN. Does that indicate that these other agencies don't need any more money to do as good a job as needed, and Extension does; or does it represent the fact they have fallen down on the job, so they don't get any more money; or what is it?

Mr. GRANT. It reflects primarily the fact that all of the agencies participating in the rural development program are doing so as a part of their regular, on-going, continuing program.

To the extent that the Farmers Home Administration, for example, makes loans and assists farmers with credit problems, it is as a part of their regular activities.

Mr. WHITTEN. That was true before, but up until this year the budget had provided extra money to these other agencies, has it not, along with the Extension, to carry this program. Now, we find this year that the other agencies don't have any special money, such as is recommended here for Extension.

Mr. GRANT. In fiscal year 1956, the $15 million additional loan funds were made available to the Farmers Home Administration for the Rural Development Program. In 1957 increases were approved for a number of additional agencies including the Agricultural Research Service, $404,300; the Agricultural Market Service, $152,200; the Extension Service, $640,000; the Farmers Home Administration for salaries and expenses, $369,750; and the Soil Conservation Service, $477,600. The Forest Service had been devoting some effort to the program within its existing resources.

In recent years, however, these agencies have been intensifying work on rural development as a part of their regular assigned programs, so that it is not feasible to identify specifically the amounts which are currently being used just for rural development. The work is being done along with, and as a part of, the regular program functions within the existing organization.

The one item which can be specifically identified now is the $890,000 provided under section 8 of the Smith-Lever Act for payment to the State Extension Services.

With the additional emphasis being placed on the rural development program, it was felt that the cooperative Extension Service,

through this increase, would be able to give more leadership and greater emphasis to the program in the coming year.

Mr. PETERSON. Mr. Chairman, I might observe on the point of interrogation to which Mr. Grant just responded, the original extra amounts made available to the other agencies remain included in the appropriation base for those agencies, so those amounts are, in effect, still available, plus whatever additional funds out of their regular activities would have a bearing on this program.

There is one other point to which I think your attention should be directed, and that is the $2,865,000 being proposed by way of increase to Extension this year, principally to be used for the rural redevelopment program is proposed for appropriation under section 3(c) instead of section 8 which would mean that it would be distributed under the formula and fully matchable by the States.

Mr. WHITTEN. Thank you, Mr. Peterson. That clears the matter up, so far as what is in the budget is concerned.

Mr. MARSHALL. Mr. Ferguson, it was my privilege to visit rural development work, or to view the rural development work at Hubbard County, along with Mr. Rutford, the Director of Extension. It was my privilege also to see some of the work that was being done in the pig marketing that you mentioned in your justification.

Now, also, in connection with the visit with him, I had the opportunity of seeing some of the work that has been done in our State in connection with Indians, which I think is quite commendable. Now, in connection with this rural development work, how much does it cost to set up a rural development county?

PILOT RURAL DEVELOPMENT COUNTIES

Mr. FERGUSON. This program has been operating up to the present time, Mr. Marshall, on a pilot basis. These vary greatly from one county or area to another. I think it is well that it has, because now we are in a position to make some evaluation of what is an adequate setup, depending on a particular situation—I don't think we could specifically at this point give you a fixed figure and say that that would apply to any situation or any county.

For instance, we are finding this—I think this is a rather common experience, that the experience in 30 States and 70 some counties and areas, would indicate that this program can very well be organized on a trade area basis rather than being restricted to county boundaries.

The amount of personnel needed, and the cost depends largely on the local situation; but I believe we could be fairly safe in saying that as we get more experience, we find that one person covers considerably more area geographically than we thought possible at first. Mr. Kepner, am I right on that?

Mr. KEPNER. Yes, I think that is the trend that is emerging out of the experience to date, and I would like to add just a further word, too, that in this experimental effort that we embarked on 4 years ago, there was no fixed conclusion as to how the job ought to be done. So we have quite a variety of staffing patterns and costs, because we were experimenting. We were trying different methods and different approaches. I think the general consensus across the country, out of this four years of experience, tends to dictate that really the thing

that is needed, the minimal requirement is one person for each definable operating area.

I would forecast that as this moves forward, in a great many cases you will still find them operating on a county basis, because the boundaries that have been established, the political boundaries, will tend to dictate that.

In other cases, we have some of it now, we have a person who is really working with two or three counties.

In another case, we have one person working at a central location within a trade area, covering perhaps as much as eight counties, with one or two people in selected counties within that trade area, so that I feel quite certain, in making these observations, that the experience we have had over these past years woud seem to point the way to a pattern of operation in the future where we will have one person who is free to spend full time in this organizational, servicing, educational, stimulating effort in the trade area. This is becoming a more commonly accepted term, which reflects the economics of the matter, and not the political boundary.

Does that add anything to your comment, Mr. Ferguson?

Mr. FERGUSON. It does. It probably helps explain to Mr. Marshall why we could not be too precise at the moment, in view of our experience to date, on what it would cost to set up an office. I would say, roughly speaking, that if we were to go into a new area today let's say for the sake of discussion, that we have a trade area of X number of counties, in which we think we could develop a real sound program, that one man with a good secretary may be all that is necessary.

If he is a good, smart operator, he will have a lot of help that isn't going to cost him anything. He is going to get it from the chamber of commerce, the local communities and others. This program differs from some others because of the interest of many agencies at the national level. These agencies are the Department of Agriculture, Department of Labor, Department of Interior, Small Business Administration and the Council of Economic Advisors. We have had some very excellent cooperation; I dont believe we would have had as much cooperation if we had not had this program.

Let me give you a specific case in point, Mr. Marshall. You will be interested in this.

We set out to work in cooperation with the Department of Labor on a project of theirs—we were simply giving them what help we could on it. It was a pilot study to find out what the available supply of labor was in specific situations in four States. I will mention just one case as an illustration.

In and around Batesville, Ark., the Department of Labor set up an exploratory system to test their aptitude to work in industry. Fifty-eight percent of all the people of working age in this trade area came in and voluntarily submitted to an examination requiring some 4 to 6 hours. They were interested in what the opportunities for employment might be, and they realized that before you can get factories to come in employers are going to have to know who lives here, and what their abilities may be. As a result of this effort

one of the large rubber companies has practically agreed to move into this community. Am I right on that?

Mr. KEPNER. That's right.

Mr. FERGUSON. I would say that where a person is assigned who is an experienced agent, who knows how to work, is capable, and knows how to marshal resources, that one person in a trade area of this kind would be all that would be necessary, such an area might include anything from a county on up to many counties, depending on the situation.

That is the way it looks to us now. But it varies with situations. I wouldn't want to generalize too much on it.

Mr. MARSHALL. At the present time, in these pilot programs that you have had in rural development, has the Federal Government been carrying the cost of those programs?

Mr. FERGUSON. The extension contribution to these pilot programs has been carried entirely with Federal funds, that is section 8, unmatched funds. We are, however, proposing that additional funds for rural development be put on a matching basis. It was sound as long as we were on a pilot basis, finding out how to do this work.

We have carried this effort far enough so that we have the pilot situations set up. Now we can go back from time to time and take some benchmark readings on the progress they are making, and use that information in other areas.

Mr. MARSHALL. As we viewed this work that was being done in rural development and also the Indian work, it seemed to me that there was a field there that was somewhat related to this pilot operation and yet somewhat different. I was wondering what the possibilities might be within the existing law to set up, say, a pilot county where you have some Indian population, to see what might be worked out there. I wouldn't want to see it being done generally. I mean by that, I would like to see it narrowed down to the point that a person working could show some results.

Mr. HORAN. Would you yield there? I think the Indians have been invited in, in Stevens County, Wash.; I talked to them about it.

Mr. FERGUSON. Yes, they have, Mr. Horan. This idea has possibilities, Mr. Marshall, because, after all, the Indians have some of the same problems other folks do. In many of these communities their incomes are low, and so they are facing many of the same situations that the other people face. Mr. Horan has mentioned that Stevens County, Wash., has been set up as a blended program between the Indian program and the rural development program. This again illustrates that up to this point we have been experimenting with different methods.

We have been trying this and we have been trying that, with certain degrees of intensity here, other degrees of intensity there. Now we are beginning to come up with some patterns that we know will work.

Mr. WHITTEN. Mr. Ferguson, I would like to go along with every increase that is in this budget, but I cannot do so without exceeding the budget, unless I also go along with all the cuts that are in this budget.

So, while you have this increase of $2,850,000 recommended for this particular estimate, we find in this bill that a million dollars has been cut away from funds to hire labor, so that we can fully utilize scientific personnel. We did that last year. It worked very effectively. We find out in this bill that work at some of these same land-grant colleges would be seriously curtailed. Watershed development, SCS, brucellosic eradication, research, and many other programs would be cut. So if I go along with the increases, I have to go along with the decreases that are in here, or else I have got to go out as exceeding the President's budget, with constant inflation and the whole press striking at governmental spending particularly in agriculture.

The fact that I ask these questions—I want the best answers you have. But it looks to me like the President and the Secretary and the Bureau of the Budget has put us kind of across the barrel. If we cannot find ways to go along with the increases, then we are not doing what you feel you have a right to expect. If we do go along with the increases, we either exceed the budget and get in difficulty with all the people, or we go along with these cuts in programs that are highly essential, and then we get credit for not restoring them.

So would you like to have my job?

Mr. FERGUSON. No, Mr. Whitten, I would just as soon have this old job of mine. Much rather, really. You have my sympathy, sir.

EXTENSION AGENTS

Mr. NATCHER. I want to join with you, Mr. Chairman, in commending the Extension Service of the Department of Agriculture for its many achievements. Mr. Ferguson, you and the members of your staff are to be congratulated on your splendid service. My home State of Kentucky has certainly benefited, and I want you to know that we appreciate the work of your Department.

You will recall that the average county agent's salary in 1955 in Kentucky was $5,022, and the average home demonstration agent's salary was $4,145. We have succeeded in increasing our salaries in Kentucky, and in 1959 the average county agent's salary was $6,500, and the home demonstration agent's salary was $5,241.

The Second District of Kentucky is primarily an agricultural district producing all types of commodities. We have been blessed by virtue of the strong farm organizations and soil conservation districts in our section of the State. We have been fortunate in the high caliber of the men and women who have served as county extension agents, home demonstration agents, vocational agricultural teachers, 4–H Club leaders, Future Farmers of America, Future Homemakers of America leaders and in our extension department at the University of Kentucky. Our Soil Conservation Service in the Second District of Kentucky and in Kentucky generally is served by outstanding men and women. Nearly all of the awards in 1959 for Kentucky went to the Second District. For instance, Mr. Chairman, the young gentleman who won first place in the statewide soil conservation essay con-

test was a resident of Ohio County. The 4–H Club champion in agriculture was announced in January 1959, and this young man was a resident of Union County. The top Future Farmer of America in Kentucky in 1959 was a young gentleman from my home county of Warren. The man of the year in agriculture for Kentucky in 1959 was from my home county of Warren.

RURAL DEVELOPMENT IN KENTUCKY

Mr. Chairman, as you well know, our family farms are vital to the economy of the United States. Unfortunately, many owners of our small farms still have small net incomes and by reason thereof it is extremely difficult for them to maintain an adequate standard of living for their families. We must save the small farmer and I believe that the most effective way to accomplish this purpose at the present time is by means of the rural development program. I was a member of this committee in 1955 when we appropriated the necessary funds to start the rural development program in this country. The pilot counties in Kentucky are Butler, Metcalfe, and Elliott Counties. Butler County is in the second district and is a low income county. We have, Mr. Chairman, in the second district a number of low income counties and the rural development program is working well in this section of Kentucky. You have heard me enumerate the many accomplishments in Butler County. The people in Butler County are convinced that the rural development program is one of the soundest programs yet devised for obtaining long range economic development and growth in a rural community. The business and professional men and our farm people in Butler County are to be commended upon their achievements.

Mr. Chairman, this county, like a number of counties in the Green River Valley of Kentucky, has suffered many times from floods, loss of lives, and flood damages. Thousands of people have moved out.

Mr. Chairman, you and our friend and colleague, Mr. Anderson of Minnesota, have always assisted me with my requests for flood control projects in the Green River Valley section of Kentucky. I remember well, Mr. Chairman, that you offered the motion before the full committee last year that saved the day. When the benefit-cost ratio and necessity have been established, you gentlemen have always assisted me with my projects and I want you to know that my people in Kentucky appreciate your assistance.

Mr. PETERSON. Mr. Natcher, thank you very much. I would certainly like to associate myself with, and I am sure my colleagues join in the satisfaction that you have expressed with the progress that has been made in your area, which is outstanding and which is exemplified in other areas where this program has been put into effect.

I should like to say for us on this side of the table, that we too appreciate appearing before this committee, primarily for the thoroughness in which this committee interrogates us and goes into the program in which we have a very great concern, and think a very great responsibility.

Mr. FERGUSON. I would like to add to what Mr. Peterson said, Mr. Natcher. I have had the opportunity of being in these three counties, and I must say that we have been very, very happy with what has been accomplished. In the final analysis, the accomplishment in any one

of these communities depends on the people in that community. Extension or anybody else can give them a hand and did give them a lift, a little encouragement, a pat on the back and help them along; but to get where they want to go, they must be on their own feet. Your folks are doing that.

RELATION OF RURAL DEVELOPMENT TO OTHER EXTENSION WORK

Mr. ANDERSEN. I want to propound this question to either Mr. Peterson—any of the three gentlemen, for that matter, in front of us here today. The increase requested for payments to States is largely based, is it not, as you state in your notes, on the strengthened, expanded extension efforts in the rural development program—I just want to point out, gentlemen, that in this room this afternoon we have devoted the entire testimony, practically, to one subject, your part in the rural development program. It may be a fine program.

What I am wondering, Mr. Peterson, is: Are we forgetting regular Extension, as we know it? There is very little said here today about the good old reliable county agent back in the Seventh District, or the home demonstration worker. I am wondering if there is anything at all in this request that would help strengthen their work? Don't get me wrong. From what these gentlemen say, from what Mr. Marshall and Mr. Natcher have to say, this rural development work is good, but I am beginning to wonder if we shouldn't have two categories here: First, Extension as we have known it previously; and, secondly, Extension in relation to its work in rural development, because if this continues now for the next few years, we will have an item of $10 million in here to boost this rural development work.

Along the line somewhere, my friends back home, with whom I have worked for about 40 years, may be forgotten. I am referring to the regular Extension worker, as we know him or her. These dedicated people must not be forgotten.

Would you like to answer, Mr. Peterson? You see the point I am trying to draw?

Mr. PETERSON. I believe I understand the concern that you express, Mr. Andersen. I do not visualize the time when rural development, of itself, will reach a very sizable magnitude of funds.

As we pointed out earlier, the increase proposed here places rural development, in effect, on an integrated basis with the total of the Extension Service, in that the increase proposed is fully matchable by the States, if it is to be used. We feel confident it will be used. We say in our notes, as you observed, principally for rural development. It is not required that all of these funds be used solely for rural development. We believe that the greater portion of them will be, but we deliberately tried to exclude saying that every dollar of the proposed increase would be for rural development and nothing else. These funds are to strengthen the total Extension program, and for this year it was our feeling that the rural development program was the principal part of the total Extension program which needs strengthening.

Mr. ANDERSEN. Mr. Ferguson, is there any danger that we may perhaps subordinate the original purpose of Extension by getting too much involved in the rural development work?

EXTENSION PROGRAMS DEVELOP COOPERATIVELY

Mr. FERGUSON. I would like to comment on that point, Mr. Andersen. The Extension programs in counties are developed cooperatively by groups of local folks and our professional staff. This process we have come to call "program projection," "program development," "program building"—it depends on what State you are in, what term is used.

This is essential and fundamental to sound educational work in Extension.

Now, in this process, each county must take cognizance of its economic and social situation. They must take cognizance of the extent to which those farms are using good technology and good management. They must identify points of weakness in the program.

As they do that, they begin to develop programs which are designed to correct some of those soft spots. Then the program moves in the direction in which it needs to go.

Unfortunately, as you so well know, in some of the low-income areas the resources have not always been available to always do the things that need to be done to help these people, the 2.6 million who produce only about 9 percent of our agricultural products.

We have spent most of our time in Extension, admittedly, with the 2.1 million who are the commercial family farmers. Yet there is a great problem with these other folks. This proposal this year is in no way designed to diminish the amount of help that is to be given to the commercial family farmer, and his family. It is designed to give a little more help to these communities which are somewhat less advantaged economically.

Mr. ANDERSEN. Though I differ with you to one slight degree, Mr. Ferguson, I think you will admit that with our county agents and home demonstration workers in every county, practically, in the United States, that they certainly at times have gone down to the strata of these 2.9 million that you mentioned and are most deeply involved in this rural development work.

They haven't been forgotten through the years, and Extension has been doing this job without recognition.

Mr. FERGUSON. Not entirely.

STAFFING PATTERNS IN RURAL DEVELOPMENT COUNTIES

Mr. ANDERSEN. I would like to ask one question of you now. Just what happens in these rural development counties relative to the present county agent, and home demonstration agent? Are they subordinated?

Mr. FERGUSON. Oh, no.

Mr. ANDERSEN. In any way? They continue their own usual line of work, do they?

Mr. FERGUSON. This is the general pattern that is becoming more common. The staff is under the chairmanship of a senior agent, or an identified leader. This group then functions as a staff in working with local committees and groups in identifying problems and developing programs. As we put additional personnel in a county or area, he would work as a member of the Extension team and would not be a separate entity.

SALARIES OF EXTENSION WORKERS

Mr. ANDERSEN. You will recall a few years back this subcommittee, all of us, were very much interested in securing a little bit higher rate of pay for our county agents and Extension workers, so that we would not continue to lose the services of all of these good people, many of whom were attracted elsewhere.

Mr. FERGUSON. Yes.

Mr. ANDERSEN. We have partially accomplished that. As I understand, that trend has been more or less discontinued. We are not losing too many of our best agents or our home demonstration workers are we?

Mr. FERGUSON. We are in the best shape we have been in a decade. As a matter of fact, we have made a rather careful study of this situation within the last few months and less than half of the States indicated that salary was their major problem.

A few years ago practically all of the States would have said that low salary levels was one of their major problems. I am happy, indeed, that the States have been able to make the corrections they have been able to make. However, there are still some rough spots, some States need funds for salaries.

Mr. ANDERSEN. Which would include my premise on this, or remarks concerning this, Mr. Ferguson. I just have a little fear that we may unintentionally devote so much of our consideration to the rural development work that we may neglect the just interests of the old-line Extension workers.

EXTENSION WORK WITH OFF-FARM PEOPLE

Mr. MARSHALL. Will my colleague yield to me? Is it not a fact, Mr. Ferguson, that so much interest has been shown in certain phases of the agricultural Extension work that, in working with people throughout the country, a very large percentage of your time is spent with people off the farm?

Mr. FERGUSON. A relatively small amount, Mr. Marshal. We made a study of this last year. From annual reports, we appeared to be getting a disproportionate size of the audience coming from the nonrural community. This is due largely to the fact that we have used radio and television to a much larger extent, and as you do you reach into more urban homes.

Mr. MARSHALL. Director Ferguson, I was not criticizing the Extension Service for getting into that field, but from a standpoint of the work that you are doing, and you class it as rural, but there are a lot of smalltown people, a lot of county seat town people, and there are even a lot of city people that avail themselves of the opportunity of your services, so when you take that group you are spending a considerable amount of time with that group, are you not?

Mr. FERGUSON. I would like to give you some data on it.

A study made by our own Division of Extension Research was based on a scientifically taken, random sample of 100 counties. Eighty-six percent of the time of all agents was spent with rural families—that is, farm and rural nonfarm. Agricultural agents spent 89 percent of their time; home agents, 82 percent; and the club agents, 86 percent of their time with farm and rural nonfarm families.

I would like to also say this, Mr. Marshall, that what you have said is true. Extension is being asked today to render a great deal of assistance to a great many people who are not strictly farmers.

For instance, if you will pardon a personal reference, the township in which I lived in Ohio before coming to Washington, was Perry Township, Franklin County. When we moved into that township in 1935 it was a strictly rural township. I was local 4–H Club leader. Today, over half of it is in the city. As the city of Columbus moved out, the people stayed. They knew about extension. Their youngsters were in 4–H Club work. Many of these youngsters who grew up in my community married and settled there. When their youngsters came along they wanted them in 4–H Clubs, too. So, as the city has moved out, this part of the culture has remained, and it has become more of an identifiable part of the urban cuture than previously. I would like also to point out to you that even so, a very large percentage of the agent's time is devoted to what I would say is the rural community.

This is a growing audience. It is a very serious problem, particularly in our eastern seaboard States, where the demand for help from urban people is very, very heavy.

We have an agent in New York State, Nassau County, who has put in a telephone recording answering system. If this is the time of year that people concerned with gardens, insects, and so forth are calling, he records a message each day, puts it on the telephone, and anybody who rings this number gets this message.

This is a technique one agent is using to reach this rapidly growing audience. 15,660 calls have been made since last September and during December there were 500 calls per week. Last year, in the city of Little Rock, Ark., Director Vines was getting complaints that people couldn't get the county agents office by telephone. The telephone company made a study and they found that the county agent's phones were the two most overworked lines in the city of Little Rock.

I mention this in passing, to show you the problem that exists in attempting to serve a growing nonfarm audience.

Mr. Andersen. Mr. Ferguson, I believe all of us on the subcommittee are happy to know that the results of Extension are going beyond just the district borders of the farm. I know I am. I wanted to conclude my few remarks here this afternoon by pointing out that this subcommittee in the last 9 years has doubled, exactly doubled, Extension funds from $33,542,000, to this year's request for $67,424,000. It will mean that in 9 years we have given you a 100 percent increase in behalf of Extension, payments to States, and all that goes with it, salaries and expenses. I think that is a pretty good record. It shows that you have in our subcommittee, as far as Extension is concerned, some very good friends, and of course that is because we feel that you are doing a good job. The concern I have expressed today is not against the rural development, but I just don't want, in our present zeal for that particular program, to forget the regular Extension worker.

Mr. Ferguson. I can assure you, Mr. Andersen, they will not be forgotten.

Mr. Marshall. I do want the record to show that while I visited Hubbard County, and I was impressed with the work I saw being

done in rural development work, my impression was that as far as solving the farm problem, that at best the rural development program can be a mere ripple in the ocean, that it is going to be involved largely in areas of low production and agricultural problems. That the big problem, as has been mentioned here about farm income and production, is one that is pretty largely separate. I do regret that the people of the country have been given the impression by some of the press that the rural development program is playing a greater part than actually I think that it is.

Mr. PETERSON. It is my opinion, as I have already expressed, that the rural development program of itself will neither raise nor lower farm income per se. There are other forces, economics, outside of the rural development program which will determine the gross farm income to be achieved by farmers in any year.

As I said earlier, I think the rural development program will help the people with whom it works to get a bigger portion of the total farm income whatever it may be, and also help them to keep as net a larger portion of what they receive. But, so far as the total is concerned, the rural development program is not designed to increase it.

Mr. HORAN. First of all, in other words, what Mr. Peterson is saying is that there are counties now where the economic status is such that they were chosen to be rural development pilot counties. If this succeeds, they will get out of that category by improving their own status.

Mr. PETERSON. This is true, Mr. Horan. The rural development program may increase incomes of people, but will not, as I said, of itself increase gross farm income. I say it will increase incomes of people partly by bringing in opportunities for nonfarm employment, where those same people are living on properties which, because of their size, are not farms or are contributing so little by way of income from the sale of farm commodities, as to not make it possible for people to live on that income.

Mr. HORAN. The program of itself won't make the cake any bigger, but will increase the proportionate size that this given county might cut out of it.

Mr. PETERSON. That is right.

### EXTENSION WORK IN STATE OF WASHINGTON

Mr. HORAN. Would you tell us what you are doing in Stevens County? That is in my district.

Mr. FERGUSON. Yes, Mr. Horan, I would be very glad to discuss Stevens County.

Mr. HORAN. I might say at the outset that you have an Arkansas-trained county agent there. I think he is a good one.

Mr. FERGUSON. I understand he is doing a very good job up there.

Stevens County is the rural development pilot county in the State of Washington. This county came into the program a little later than some of the others. Of course you are very familiar with the problems of this county. It is also in an area in which we have part of our Indian work, Mr. Horan.

Mr. HORAN. On Spokane Reservation.

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Mr. FERGUSON. Yes. That is there.

First, I would like to comment on the work with the Indians. Then I am going to ask Mr. Kepner to comment a little further on the rural development effort there. The total Indian population of Washington, I believe it is about 14,000. From what we can learn, the working relations are exceptionally good; Indian leaders have been giving this program very good support, and that the college and the total staff have been doing a very nice job.

I understand that you have some very good Indian advisory committees working with the agents. I would like to emphasize the importance of this in working with Indian people. You don't get far until you get them working with you. Until they come to the point where they will sit down and work with you on committees, join associations, get their youngsters into 4–H Clubs, their wives get into home demonstration groups, and that sort of thing, you don't make much progress.

I understand there are about 225 Indian 4–H Club youngsters. I believe they had two or three 4–H Club camps last year, and that the home demonstration program has been doing very well with emphasis on nutrition, child care and home improvement.

Now, I understand this has been coupled rather closely with the rural development program and Mr. Kepner, would you comment on what has been done in Stevens County on rural development, please?

Mr. KEPNER. I would be glad to. And, just picking up from the point where you left off, I understand they have either two or three Indians on the county committee, which shows the integration of effort that is taking place there.

For the benefit of the other members of the committee, Congressman Horan is thoroughly familiar with this, this is a county where 90 percent of the area is in forestry. Obviously, this makes the forest industry an extremely important one. As a result, they have given a lot of attention to the whole question of improving the forestry industry of the county. They have gotten the vocational schools, of which there are three in the county, interested in this work and the youngsters of those schools have themselves started nurseries for the production of forest seedlings as a school enterprise, which is, I think, a plus over and above what the Forest Service and the industry and everybody else does.

In other words, it is utilization of local talent and local resources. They have developed a couple of small wood utilization plants. One wood engineering company of Colville manufactures pole sockets and sanitary base shoe corners. It provides employment and an income of $33,000, estimated, the first year, over and above what was there before. They also have developed a pole treating plant.

One of the things that is extremely interesting is the fact that the people are interested in education and educational facilities beyond which they have had before. They have at times tried to enlist interest in getting a junior college established. When the community as a whole, with both rural and urban interests joined hands to take a look at their problems, and decide what needed to be done, they got the State department of education to approve the establishment of a 2-year junior college there, utilizing the existing high school building. All they had to do was either employ more fully the staff they had or employ some additional staff.

But it indicates a significant accomplishment in the interest of the youngsters that are coming on who have been somewhat isolated from the large metropolitan areas and higher educational institutions. With limited and minimum resources, they have established a junior college which is now in operation for the first year.

The tourist industry is one that is rapidly assuming greater interest and greater proportions. They have quite a drive on to improve the tourist potential of the area. They have organized to appraise what the tourist and recreational facilities might be that would be of interest to outsiders. They have undertaken the development of road markers and other guides for tourists, improving tourist facilities and the like; and have under consideration the development of ski facilities at Colville, which is still in the discussion stage, but with the same enthusiasm they have attacked other problems, no doubt in another year that may be a reality.

On the agricultural side, limited as it may be in relation, acrewise, to the total area of the county, only 10 percent of the area or less being classified as agricultural, they saw the need for a livestock auction establishment in the county. They established one in May of 1958, through which they put 8,000 head of livestock, to a much greater advantage to the farmers of the community than the opportunity they had before for orderly marketing.

They are establishing a slaughter yard in connection with it, and a feed yard to finish off the livestock which comes in off the range or their pastures in inadequate shape to provide the quality of beef they think they can produce there.

In anticipation of continuing work in 1960, they are appraising the potentialities of additional crops of specialized nature. They are looking into the seed crop possibilities. I haven't the least idea what the potentials are, but that is one of the avenues they are pursuing, as well as vegetable and horticultural crops. They are also undertaking the improvement of the irrigation facilities of the county, and they are stepping up the work in swine production and sheep production, even though, in relation to forests the opportunities are not astounding, and they are not going to revolutionize the economy of the area in that way. But, nevertheless, every bit that is added to the opportunity for bettering income in the county is on the plus side.

That is as about as concise a report as I can give, Mr. Ferguson.

Mr. HORAN. I am under the impression, and you can correct me if I am wrong, but this hasn't resulted or caused any great amount of expenditure of funds?

Mr. KEPNER. One man, as far as we are concerned.

Mr. HORAN. He was already hired?

Mr. KEPNER. Out of the special fund.

Mr. HORAN. You augmented the staff by one man?

Mr. KEPNER. About $10,000.

Mr. HORAN. I have been impressed with County Agent Maxwell's approach for this thing. He comes from Arkansas, and he had been there but a short time, when this program was given to him to handle. He didn't run out the door and start wiring me for Farmers Home funds. He says, we are going to take a look at what we have and what we can do with it.

Apparently they have been operating on that basis. A lot of these things would be stretching the imagination or credence to say that rural development caused all this, but it has been my experience, past experience, that if you can get people of a given area or community to thinking and working together, results flow from it. It doesn't necessarily mean the expenditure of money out of the Federal Treasury. It might mean a matter of investments, but that will be paid back if you get everybody working in the same direction. Of course, that is the important thing.

RURAL DEVELOPMENT FOR INDIANS

I am very happy that they have the Indians in on the planning end of this thing, as well as the management of it. The Indian responds very well to personal responsibility. They will do things that are truly constructive.

Off the record.

(Discussion off the record.)

Mr. HORAN. I am very proud of the privilege that I have had to try to help the American Indians, especially the ones that I represent, in trying to improve their lot. You know, it is the old story of Cain and Abel all over again. They were nomadic, not cultivators of the soil. They were herdsmen of sorts. But then we came along and we plowed up their ground and we imposed the white man's way on them. We are expecting them to change. They can hardly change overnight.

One of the benchmark projects among the Indians—I have three reservations—benchmarks of improvement and progress, is the fact that we more and more are turning over matters of policing to the Indians themselves, or at least they are in on it.

We have changed the health program for the American Indian. Of course, this is tangent to what you are trying to do. We turned a great share over to the Public Health Service, but I am insisting, and Dr. Christensen and Dr. Shaw, who have charge of Indian Medicine for the Public Health Service, have agreed that they will do nothing on the reservations of my district without setting up at least a health committee with some responsibility in the programing of health programs among the Indians.

I trust that whatever we do in the direction of the work that is being done, cooperatively with the State, by having a county agent on the reservations, and home demonstrators, will increase the work of the Indians and the Indian children who are joining 4–H Clubs, and now they are having their displays at their county fairs—they call it by another name. They used to call it salmon days, before Grand Coulee went in, but they did then have these displays.

Churches are working among them. I think they are making headway. But the key to the whole thing is to get them into the act and to give them as much responsibility as we possibly can for what goes on with them, themselves, and I am sure we will make headway.

(Discussion off the record.)

Mr. HORAN. There is one other field, and I would like to have you comment on that. We know, we have had some discussion before this committee already, as you well know, regarding the problem of registering pesticides and rodenticides and other chemicals that might be used in the production of agricultural crops. They are registered, they are certified for use under instructions on the label. Then they are produced by the chemical companies and sent out to distributors, and they are sold to the growers through ads in the papers that say that this will correct various infestations.

You get to the place where agriculture has done its job, and presumably that they are in agreement with the Food and Drug Administration. The manufacturers put the goods on the shelf. Then the user has a problem and he wants to use a certain chemical, and he misuses it, as was the case—according to the paper, at least— in a very small percentage of the Nation's cranberry growers last year, a very small percentage. I think they said there were only 300 pounds condemned in our area. Yet, the whole industry was libeled.

At that time we heard that the biggest producer of cranberries in the United States was incensed, because they had followed the use of any chemical from the time it reaches the distributor's warehouse until the cranberry crop is harvested. The county agents up there know every producer by his middle name. I wondered what your thinking has been since this occurred, because one of the logical places to look in enforcement of the application of any chemical would be the Extension Service. Certainly the educational part of it.

Mr. FERGUSON. I would be very glad to comment on that, Mr. Horan, because, as we see it, this is a very serious responsibility of the Extension Service. As chemicals have become more numerous, they have also become more complex. They have become more powerful, and an additional burden has been placed on the Extension Service to be sure that these chemicals are used properly and appropriately.

When this thing happened last fall, we made a very careful study of Extension recommendations in every State where cranberries were grown, and at every point we found that Extension people had been giving good, sound, solid recommendations.

I believe, as you know, and as you have said, Mr. Horan, that practically all of the growers were following these recommendations. I would not be one to say that through educational process you reach every person, or that every person reached does things as carefully as he should.

Mr. HORAN. How can we make sure that the seller of agricultural chemicals follows the instructions which are consistent with the registration, and how can we be sure that the producer also follows instructions which are consistent with the registration of any given chemical?

Mr. PETERSON. So far as the manufacturer and distributor of chemicals in formulations by use by farmers is concerned, when they engaged in interstate commerce, they are required to register their product under the terms of the Federal Insecticide-Fungicide-Rodenticide Act. When they sell it within a State, they are required to register under comparable State laws. The State of Washington has such a law; the State of Oregon has such a law; the State of California has such a law, as well as other States. I am not sure that all States do, but I believe all of them do. So the seller is operating pursuant to law which requires his product to be labeled with directions for use by the ultimate user.

There is, so far as I know, at the present time no law, State or Federal, which follows the product into the hands of the user, and scrutinizes his method of use.

I should suggest, however, that there is a great economic enforcer upon the user to use it within the prescription on the label, because he knows that if he doesn't his product is subject to seizure under certain State or Federal Food and Drug Acts. Within that framework, then, education through the Extension Service does have a place, and is meeting its responsibilities in that place through educational programs to producers who must necessarily use these chemicals.

Mr. HORAN. Mr. Chairman, I think this is a very important matter. We all represent agricultural districts in this committee. There is quite a disposition on the part of a chemical company itself today to get out of the agricultural-chemical field, because they don't like what is going on. They are being policed, they think, unfairly. There isn't much profit in it, because some of these are very low-margin commodities.

Up to this time—I will yield in just a minute—up to this time, most of those companies have employed fieldmen. These are paid for out of the profits of the operation of the chemical companies themselves, but if they withdraw from the field of agricultural chemicals, we will lose one body of men, these fieldmen, who might be put to use in this sort of self-policing, or assist at least.

Mr. PETERSON. If you will permit——

Mr. WHITTEN. Could I make this statement? We have explored some of this. I thoroughly agree with the point made by the gentleman from Washington. Certainly everyone on this committee wants nothing to be done in this field of using insecticides which would, in any way, endanger public health. From the statements made that the pesticides and other insecticides are going to be set aside on an extreme possibility, it just leads me to the thought that if you carry it too far, so that you can't use them at all, the diseases that will thereby be left in the agricultural commodities and products might well be a lot more than remote possibilities, so far as doing damage to the consumer is concerned.

If we quit all of this, that which is left will probably be more dangerous than the examples that have been brought to us in actions taken in recent months.

Mr. PETERSON. May I say in response to the observation that Mr. Horan made, that in addition to the fact that the principal manufacturers and distributors of agricultural chemicals have fieldmen working with their outlets and with the users, the companies and individuals

who process and ship interstate food commodities also have fieldmen who work with their growers for the very simple reason that they want to assure themselves that the raw products they are receiving from growers, when they process it and it is put in the consumer packages, is not in violation of the food and drug laws, either State or Federal, and thereby subject to seizure and destruction if it is not in conformity with those laws.

So there are a very considerable number of protections that exist to achieve the objective which all of us have, to see that American foodstuffs offered to American consumers are the safest and the highest quality in the world.

I should make the further observation, Mr. Chairman, and gentlemen, that, in my opinion, if the procedures are carefully followed, which now exist in both Federal law on the part of Federal administrators, and on the part and within State law, on the part of State administrators, it is my opinion that all the problems that exist can be resolved.

Mr. MARSHALL. Mr. Chairman, I noticed in the justifications that it was mentioned that the Extension Service had done some commendable work with the dairy industry. I think, as a further comment on that, that I serve on the Appropriations Subcommittee for the Food and Drug Administration, and Mr. Carrick paid a compliment to the fact that the dairy industry have done as much as they have been doing in order to improve their product and that again comes back to some of the work that you people have been doing in Extension.

Mr. FERGUSON. I would like to add to what Mr. Peterson said, and to your comments here. I don't suppose that there is anyone on our staff who maintains as close liaison with another department of the Government as does our extension entomologist. I deeply regret at the present time we do not have an extension plant pathologist. The Agricultural Research Service puts out each year a list of recommended chemicals and recommended methods of application. Our people work with the Agricultural Research Service people as these recommendations are developed. In turn they are sent up to the State entomologists, and plant pathologists. They in turn use them in their educational programs in the States.

These educational programs in the States take various forms. We have, first, the direct educational work that goes from the county agent to the farmer. It may be on mastitis control, the use of penicillin, or DDT, and so forth. One of the very useful things that have been done in this program is the maintenance of an ongoing contact with the trade.

An an example, one State holds each year what they call a pesticide institute, to which they bring all of the trade within that State who are concerned with the manufacturing and distribution of any kind of pesticide. This includes insecticides, fungicides, herbicides, and so forth. At these meetings, they not only discuss the new products that are coming out, but they discuss which are approved for use. They particularly emphasize the importance of safety in their application. They, have been very effective in developing a consciousness on the part of both the trade and the consumer (the farmer in this case) that these materials must be used very carefully.

REDUCTION OF PENICILLIN IN MILK

I have been greatly heartened, incidentally, by the marked reduction in the occurrence of penicillin in milk, since extension went out 2 years ago on a quiet but rather intensive program on control of mastitis. We emphasized the proper use of penicillin, in the control of mastitis. We have had very substantial results. This program hasn't been going very long, and I think we can make a lot more progress. I am very greatly heartened by the progress we have been able to make. I have been very happy with our check of what has been done in the States. Since this has become such a matter of public concern we find that, a good job is being done.

Mr. PETERSON. Apropos the chairman's statement a moment ago, Mr. Marshall, the Secretary had a letter from one of the principal manufacturers who maintain in their own behalf a sizable research station and advises that they were closing that research station, which is indicative of the fact that they are largely withdrawing from the field of manufacturing agricultural pesticides.

Mr. WHITTEN. Gentlemen, we wish to thank you for your appearance. I believe, perhaps more than most others, I can fully appreciate the valuable services of every segment of the activities carried on by the Department of Agriculture. Not only do I appreciate them, as I said, on this committee, but I say there is absolute necessity for them, clearer, in my opinion, than many others. That is what makes it so much more difficult to try to hold back, when I can see that costs are going up, dollars are going to get cheaper, and so-called defense spending, which isn't buying defense, is going up, and the waste. I know the same salary doesn't stay the same because the costs are going up. It makes it extremely difficult to know how to take care of these various and serious problems.

Just the effort it takes to stay even is a major problem with the number of acres of soil that are ruined by nematodes, and unhealthy for plant life, and just what would happen if we didn't constantly fight against these things. This fight that we make is not limited to research that finds the answer, nor to control programs, but also to the county agents of the Extension Service, who enlist the thousands and thousands of farmers who, after all, have to do most of it. So I do appreciate your work. I appreciate the Extension Service. It is the hub in most of the areas of this country and the county agents are smart, in my judgment most of them are, and I referred to my own county agent earlier, I really mean it. The people figure he is running these other two programs because he recognizes the value of soil technicians and the value of ACP programs, which help to finance this. They contribute greatly to his ability to get people to do what they should be doing.

As I say, I don't think there is a service in the Department that is a more essential one, which all of the people of the United States seem to realize.

Mr. PETERSON. Mr. Chairman, thank you very much. We really appreciate that statement. I want to say again, for myself, and my side of the table, at least, while we may have some differences of opinion on some things, we sincerely appreciate the understanding

that you personally and each member of this committee has of the Department, of its problems, of its programs, and the thoroughness with which you place us under interrogation.

Mr. FERGUSON. I would like to just add to what Mr. Peterson has said, Mr. Chairman, that we appreciate these opportunities to visit with you. We are particularly appreciative of the fact that you do bring many problems out, and that we get a chance to discuss them. We sincerely appreciate the help that your committee has been to us over the years.

Mr. WHITTEN. We appreciate that very much.

TUESDAY, FEBRUARY 23, 1960.

## SOIL CONSERVATION SERVICE

### WITNESSES

ERVIN L. PETERSON, ASSISTANT SECRETARY OF AGRICULTURE, DEPARTMENT OF AGRICULTURE
D. A. WILLIAMS, ADMINISTRATOR, SOIL CONSERVATION SERVICE
C. E. KELLOGG, ASSISTANT ADMINISTRATOR FOR SOIL SURVEY
W. R. VAN DERSAL, ASSISTANT ADMINISTRATOR FOR MANAGEMENT
CYRIL LUKER, ASSISTANT TO THE ADMINISTRATOR FOR GREAT PLAINS CONSERVATION PROGRAM
H. R. WILLIAMS, ASSISTANT ADMINISTRATOR FOR WATERSHEDS
C. B. BROWN, ASSISTANT TO THE ASSISTANT ADMINISTRATOR FOR WATERSHEDS
C. H. DORNY, DIRECTOR, BUDGET AND FINANCE DIVISION
L. E. LYMAN, CHIEF, BUDGET BRANCH
W. T. MURPHY, DIRECTOR, DIVISION OF FLOOD PREVENTION AND RIVER BASIN PROGRAMS
FRANK POLLARD, DIRECTOR, WATER RESOURCES LOAN DIVISION, FARMERS HOME ADMINISTRATION
CHARLES L. GRANT, DIRECTOR OF FINANCE AND BUDGET OFFICER, DEPARTMENT OF AGRICULTURE

Mr. WHITTEN. Gentlemen, the committee will come to order, please.

Mr. Peterson, I believe the Soil Conservation Service comes under your overall jurisdiction. Do you have a statement for the committee?

### GENERAL STATEMENT OF ASSISTANT SECRETARY PETERSON

Mr. PETERSON. Yes, Mr. Chairman, I have a few remarks.

We are glad to consider with you the proposed budget for the Soil Conservation Service of the Department of Agriculture for the 1961 fiscal year.

The interest and actions of this committee have always been helpful and constructive in carrying on the soil and water conservation programs administered by the Department of Agriculture. I assure you that your interest and your help are appreciated.

Public support of and farmer participation in our national soil and water conservation programs continue to grow. Technical assistance to the Nation's more than 2,900 organized Soil Conservation

Districts as provided in Public Law 46 continues to be the most significant Federal effort in advancing the use of soil and water conservation techniques on the farms and ranches of the Nation. The Watershed Protection and Flood Prevention Act and the Great Plains conservation program constitute additional legislative tools embodying the same basic principles of soil and water conservation to meet the needs of special situations.

The task ahead of us is to continue to build upon these programs, make them more workable, more effective, more efficient.

### CONSERVATION ACCOMPLISHMENTS

Progress in soil and water conservation is impressive. In a quarter century a national program has been initiated, tested, and proven. Soil conservation districts, which 24 years ago began as a hopeful experiment in local self-government, have demonstrated their value, and now encompass 95 percent of the Nation's farms and ranches. Public support for conservation is high and continues to enlarge.

The results achieved have not been without investment of thought, time, and work. Compared with many national undertakings, relatively little public money has gone into the movement. That may be the secret of its success, for these programs are directed toward helping people to help themselves. Those things people have created with their own hands, and their own labor they value more than they do those things which they acquire through no effort of their own.

The physical accomplisments of this program have been great. Millions of acres, once eroding and decreasing in value, have been restored to productive capacity. Many areas subject to recurring, flood damage now are free from that threat. Many farm and ranch homes are better homes because the productive capacity of the land which supports them has been protected and saved.

Of perhaps equal importance is the establishment of a means by which resources on which the Nation now depends and will in the future depend for its need of food, fiber, and other material can be safeguarded and kept productive.

The future demands on the farm and forest lands of our country are of large dimension. In a few years the demands upon our soil and water resources will far surpass both the past and the present.

By the year 2010 our population will be double what it is today, according to Census Bureau estimates. This means, if we are to be as well fed as we should be 50 years from now, farmers will have to at least double their present crop output and more than double present levels of livestock production. The demand for timber products can be expected to increase by 80 percent in 40 years.

Soil and water conservation will not provide the entire answer to all future demands, of course, but it will be an essential base upon which other efficiencies and improvements can be soundly applied.

It would be patently unwise to wait until the time of need arrives to protect the productive capacity of the land. What we do now may well determine if we can meet the demands of the future.

The Department believes that local soil conservation districts with local control and direction are the most satisfactory means yet devised through which public conservation efforts can achieve maximum re-

sults. Districts are essentially catalysts to draw together into a single effort much if not most of the resources both public and private directed to conservation—to caring for the physical needs of our land resource.

CONSERVATION OPERATIONS BUDGET

While the budget before you for consideration is, we think, a minimum budget it will provide for the continuance of present programs at about present levels. The budget item for conservation operations, which is assistance to soil conservation districts, proposes about the same appropriation for 1961 as is expected to be spent this fiscal year. The only change is an increase of $560,000 to provide funds for the SCS contributions under the Health Insurance Act that becomes effective in July.

We expect to be able to provide service to the 20 new soil conservation districts we anticipate will be organized during fiscal year 1961 and to continue service in present districts.

The opportunity for service to agriculture and the Nation through the watershed protection and flood prevention program is a tremendous one. Water has become a dominant and limiting factor in resource conservation and development. Most of the people of this country are directly affected by water resource problems of one kind or another.

The approach to these water problems offered by the watershed program is, to me, fully sound. It not only attacks the problem where all water problems begin—on the land; it also deals with soil and water use on the basis of the natural drainage pattern, which is the small watershed. And by singling out the small creek-sized watershed as the unit of operation, it breaks the problem down to a size small enough for people to meet effectively.

Finally, the watershed approach to conservation problems makes room for everyone who is concerned with soil and water problems within the watershed—municipalities, recreationists, industries, wildlife groups and others, as well as the farmers and ranchers who operate most of the watershed lands.

In short, this program offers a splendid opportunity—the best available to my knowledge—for all interests of a community to work together effectively in planning and carrying out multiple-use projects that recognize all the resource values of the watershed.

We believe the budget proposed for watershed programs for fiscal year 1961 will carry the work forward even though this will be the first year construction has caught up with available funds.

As of January 1, 1960, we had received 1,241 State-approved applications from local organizations for assistance in watershed planning. Of these, 518 have been authorized to receive planning help, and 212 to receive installation help.

WATERSHED PROTECTION BUDGET

For watershed protection the budget proposes a $5 million increase. Together with an estimated carryover of $2,250,000 a total of $30 million would be available for 1961 which is roughly the same amount as is planned for obligation in the current year. The 1961 estimate con-

templates $3.5 million for planning, $2.5 million for pilot projects, $21.9 million for construction, $1 million for loans, and $1.1 million for basin investigations.

Planning funds will be reduced to bring about better balance between planning and the funds available for installation assistance.

FLOOD PREVENTION BUDGET

We believe the $15 million requested for flood prevention in the 11 authorized watersheds will permit reasonable progress in fiscal year 1961.

GREAT PLAINS CONSERVATION PROGRAM

In the 10 Great Plains States a new program—the Great Plains conservation program, Public Law 1021 has been well received.

Nowhere in the country was there greater need for coordination of all the programs and aids that might bear on the critical land resource problem of a region. It was not enough to recommend and plan for the major land use adjustments needed in the so-called Dust Bowl region unless farmers and ranchers were also helped with cost-sharing related specifically to such plans and guaranteed over the period of years required to make the shifts in land use and in the way land is managed in order to meet the natural hazards which characterize the region.

This program is based on a complete farm conservation plan, based on the needs and capabilities of the soil.

In addition, and by making fullest use of the farm plan, an opportunity was made for the effective integration of all programs currently available that may apply in varying degrees of use in each separate instance. The program did not replace any other, but merely provided a means of bringing together in one place and for one purpose all the conservation tools that a farmer or rancher believes can be used to speed up the permanent solution of his soil and water problems.

I would say that this program has provided the first real hope that a permanent solution can be found to the recurring soil and water problems of this vast area, so often called "the Nation's breadbasket." This program will be of tremendous importance in working toward the goal of resource readiness for the national demands which can now be foreseen.

The Great Plains conservation program completed its first two years of field operations in December. More than 10,600,000 acres of Great Plains land were covered by 3,842 contracts on January 1 of this year, with another 2,860 applications pending from farmers and ranchers who want to take part in this program.

This program has received three appropriations of $10 million each, the first one coming with six months of the year gone. Because the program required considerable "tooling up" there have been fund carryovers each year, except possibly for the year in which we are now operating.

We have again asked for $10 million for the Great Plains conservation program, which will enable us to move ahead at the current rate. It is obvious, however, that the work will not go forward quite as

rapidly in fiscal year 1961 as it might if it were possible to devote more resources to this important activity.

TRANSFER OF ACP FUNDS FOR TECHNICAL ASSISTANCE

From time to time we have discussed with this committee the problems associated with the transfer of agricultural conservation program funds to reimburse the Soil Conservation Service for technical services rendered in assisting farmers with the establishment of certain conservation practices for which cost sharing is available. Last year your committee suggested that the Department give further study toward the simplification of (1) the processes involved in estimating the needs for technical services to be furnished by SCS and (2) the actual determination of costs of technical services rendered to ACP. It was suggested that the study include the feasibility of using a flat charge per hour for the reimbursement of technical services rendered.

The Department has since made an extensive study of this problem and has established new and simplified procedures which are being used in connection with the 1960 agricultural conservation program. The new procedures are substantially simpler on both points recommended by the committee. We have adopted State by State a flat per hour charge for the reimbursement of technical services. We have also adopted State by State a fixed percentage of the amount of the cost of technical services which is to be absorbed by the Soil Conservation Service from its regular funds. Both of these determinations are made on the basis of past history in each State.

We believe these simplified procedures will substantially reduce the paperwork involved in the transfer of ACP funds to SCS. Under the new procedures there is less paperwork involved in developing the transfer agreement county-by-county and we have eliminated the referral by referral accountability for transferred funds.

We believe these new procedures are about as simple as they can be made under a county-by-county transfer arrangement. As we have expressed to this committee before, however, we believe that substantial savings could be made if the financing of this work was provided for at the national level.

The transfer of ACP funds for needed technical services seems to have become stabilized for the past several years. Nationwide the tansfers have been holding steady at a total of between $7 and $8 million annually. We believe it would benefit both programs and afford more services to farmers if a specific dollar amount of ACP funds would be earmarked for technical services in the appropriation act in lieu of the provision for county-by-county transfer arrangements.

The Department of Agriculture is proud of the soil and water conservation progress that has been made in recent years. The programs conceived by the Congress are sound. Our legislative tools, I believe, are adequate. And firsthand observation in the field during the last 5 years convinces me that the programs the Congress has authorized are being carried forward vigorously and efficiently, both by the soil conservation districts and other local organizations, and the Soil Conservation Service. I believe the budget we have proposed will permit us to continue this great work, at a reasonable rate of speed, in fiscal year 1961.

Mr. Williams, do you have a general statement, too? We might hear that first before we proceed with any questions.

## General Statement of Administrator

### Twenty-fifth year anniversary of conservation program

Mr. D. Williams. In a few weeks—on April 27 to be exact—we shall reach the 25th year of our national soil and water conservation program.

On that date in 1935, Public Law No. 46, enacted by the 74th Congress, was approved by the President. Public Law No. 46 declared soil and water conservation on farm, grazing, and forest lands of the Nation to be a permanent policy of Congress, and it established the Soil Conservation Service in the Department of Agriculture as the agency to carry out the purposes of the Act.

To be sure, a beginning in national efforts was made in 1930 when a small sum was appropriated for soil erosion investigations; and an emergency demonstration program started in 1933. But the program as we know it today had its real beginning 25 years ago when Congress made specific legislative provision for a national soil and water conservation program.

The Congress, those of us professionally engaged in this work in the public service, and the farmers and ranchers of the Nation have a right to be proud of the accomplishments made in the past 25 years. In that quarter century, soil and water conservation made more progress in the United States than in all the years back to colonial times.

Several major developments, it seems to me, are the foundation stones of the conservation progress we have made.

Development and refinement of the concept that land varies from field to field, and that it can be classified as to its capability, made it possible to prepare and apply scientifically sound, workable, flexible conservation plans on individual farms and ranches.

Development of the concept that each farm or ranch must be considered as a whole, and not planned or treated piecemeal, led to modern conservation farm and ranch planning based on the capability of each field for safe, productive use—for cultivation or for meadow, for pasture or for range, for wildlife or for woods.

Development and rapid growth of soil conservation districts, certainly the most successful experiment in agricultural democracy in our history, made it possible to bring the full benefits of modern conservation technology to the individual farm and ranch, under local control and guidance, and on an organized, efficient basis.

Another foundation stone in our conservation progress is the development of a new kind of professional technician—the soil conservationist. This has made it possible to bring to a coordinated focus on a single farm or ranch across-the-board techniques representing a combination of the physical, biological, and social sciences.

The soil conservationist, a specialist in conservation planning and land use, brings his unique skills directly to the land of the individual farmer or rancher. He is backed by highly trained specialists—

agronomists, engineers, foresters, biologists, hydrologists, economists, range men, and others. Together, the broadly trained soil conservationist and the technical specialist constitute what I consider to be the finest crops of soil and water conservation technicians in the world.

Our national soil and water conservation program has had tremendous impact upon American agriculture.

Across the Nation you can see on the land many soil and water conservation trademarks, placed there in cooperation with soil conservation districts by individual farmers and ranchers with the technical help of the Soil Conservation Service.

The curving sweeps of contour stripcropping, of terracing, and of contouring have become a standard feature on the landscape. Hundreds of thousands of farm ponds provide better water and grazing management and improved wildlife habitat. The program has developed many of the most useful grasses and legumes now in wide use, and has been largely responsible for a great increase in grassland. Last year, for example, farmers and ranchers in soil conservation districts alone seeded grass on more than 1.5 million acres of rangeland and planted improved pasture on more than 3 million acres. In the South, diversified farming has taken the place of the old single-crop system.

Those are just a few of the changes and improvements that have occurred on our farm and ranch land in the last quarter century. I could cite many others, including tree planting, improved methods of applying irrigation water and improvement of irrigation systems, the spread of land leveling and development and widespread acceptance of a new concept of range management in our Western States.

Out of experience and progress have come two major new programs—important additional tools in our soil and water conservation efforts. They are the Watershed Protection and Flood Prevention Act, Public Law 566, and the great plains conservation program, Public Law 1021. Interest in these two programs, both of which are meeting needs of long standing, continues to mount.

### CONSERVATION JOB IS INCREASING

It is no reflection on the excellent progress of the past quarter century to say that the total conservation job is increasing rather than diminishing in scope.

Nearly all conservation problems become more complex as our population grows and as modern technology opens up additional and more specialized uses for land and water.

Many new kinds of conservation problems are being created by the intermingling in rural areas of farm and nonfarm people and activities. As cities and industries expand and large acreages are taken over by nonagricultural developments many complex land and water problems arise. And I would remind you that every year more than 1 million acres of our most productive land are lost to agriculture in this process—land that cannot again be used to produce food and fiber.

In 50 years we shall have to feed and clothe twice as many people from about the same if not a lesser acreage of cropland than we use today. Improved technology of soil and water conservation certainly must be one of the principal means of meeting that doubled demand.

We can take great pride in our accomplishments during the past 25 years but the future needs of our people dictate that there can be no stopping place in conservation progress.

The United States can be no greater tomorrow than the foundation from which it stems and upon which it depends—our soil and water resources.

Now I wish to refer to the budget items for fiscal year 1961 and the justification thereof.

CONSERVATION OPERATIONS

The item headed "conservation operations" is the one under which the Soil Conservation Service provides technical and other assistance to farmers and ranchers in soil conservation districts.

Since this is the primary job of the agency, the Service took several steps this year to improve working relationships with districts.

One step was a restatement of the Service's longstanding policy toward districts and their business affairs. Another was the publication of a joint program of action developed by representatives of soil conservation districts and the SCS. The program of action emphasizes the responsibilities of each organization and suggests methods by which districts can make more effective use of technical facilities of SCS.

The Service in fiscal year 1959 provided technical help to 2,847 of the 2,861 districts in the 50 States, Puerto Rico, and the Virgin Islands. These districts include about 95 percent of all the farms and ranches and cover more than 90 percent of the farmland of the Nation. During fiscal year 1959 there was a net increase of 55 new soil conservation districts. Funds were made available by the Congress for staffing 30 of these districts.

Twenty States are completely covered by districts and another 12 States are more than 90 percent covered. New districts are being formed at the rate of 20 to 30 districts per year, and additions made to some older districts. About 28 million acres of land are being brought into new districts and additions each year.

At the end of the year, 1,859,439 farmers and ranchers operating 563,743,296 acres were cooperating with their districts. About half of these farmers and ranchers used technical help from the Service during the year.

In addition, the SCS provided technical assistance on 2,647 water-management group enterprises, each involving several landowners in a soil conservation district. These group projects dealt with irrigation, drainage, or other water problems affecting 23,087 farms and ranches and benefited 1,847,000 acres.

During the fiscal year some of the more important increases in conservation practices were: suitable mulching, pasture and range seeding, tree planting, windbreak planting, pond construction, terracing, diversion construction, improvements in drainage, and land leveling for irrigation.

Lands are being planted to trees at the rate of about 1 million acres per year. Another 3 million acres of pasture planting was completed in 1959. Range seeding was also applied on 1,696,000 acres. Nearly 2½ million acres of lands previously used for cropland were con-

verted to grass, and more than ½ million acres of land previously used for crops were converted to woods. These accomplishments reflect not only the efforts of SCS but also the results of research, education, credit, and cost-sharing.

Several States have made substantial appropriations of State funds, now totaling over $5½ million of State appropriations and allocations. In addition, districts have found ways to obtain assistance from many sources other than the Federal Government. All of this makes it possible for the SCS technicians assigned to districts to work more efficiently.

Many soil conservation district governing bodies have adopted a policy of giving limited assistance to landowners who are nonfarmers. This is especially true in the Northeast and on the west coast where large areas have gone into suburban and industrial developments, often leaving much land in an inbetween state of partial use or nonuse that is neither rural nor urban.

The Service in 1959 adopted a policy of working with soil conservation districts on "urban" problems and made arrangements to provide technical information and assistance on request. The assistance consists largely of supplying information about soils and their interpretations, advice as to proper treatment and management of land, and guidance on problems of flooding, drainage, and other types of water management. Such help usually has a lower priority than help to active farmers or ranchers.

## SOIL SURVEYS

More than 616 million acres had been covered by soil surveys that show sufficient detail for conservation planning of farms, ranches, and watersheds and for other purposes by June 30, 1959. This is about half the land in farms in soil conservation districts and about 30 percent of the total land area of the United States.

Progress in field mapping in fiscal year 1959 increased 16.9 percent over the previous year. This was done with an increase in man-years devoted to this activity of only 7.3 percent. The number of soil survey reports published increased from 16 in fiscal year 1958 to 37 in fiscal year 1959. As of June 30, 1959, 203 soil survey reports published contained the kind and detail of information that meet current standards. These cover about 70 million acres. The remaining 1,526 soil survey reports that have been published since 1899 are useful but lack one or more essential details, primarily because of small scale limitations, and because they were not designed at the time they were made for detailed technical assistance.

Strong demands continue for moving the soil survey job along at a rapid pace to provide a sound basis for developing and carrying out conservation plans on farms, ranches, and watersheds, and for other additional uses such as FHA soil and water conservation loans, conservation reserve, ACP cost-sharing, Great Plains conservation program, rural land classification, engineering construction, and as guides for land buyers and for urbanization.

In some metropolitan areas soil surveys are helping to guide the direction of urban and industrial expansion, as well as in locating new superhighways onto lands less productive for agriculture.

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Soil surveys are also being increasingly used as a basis for information on the suitability of soils for construction of buildings and roads and for locating septic tank fields for sewage disposal, and the like.

Most of the soil survey reports sent to the Public Printer during the fiscal year 1959 contained useful engineering sections prepared jointly by engineers and soil scientists. In addition, woodland sections were prepared jointly by soil scientists and woodland conservationists for most soil survey reports where woodland production is important.

A study was completed this past summer to determine who uses published soil survey reports, what they are used for, and how they can be improved. The study revealed that the reports are used for many purposes by people in a variety of occupations. A number of suggestions for improvement in the text and maps were made. Many of these have already been incorporated in recent soil survey reports.

WATERSHED PROTECTION

As of January 1, 1960, SCS had received 1,241 State-approved applications for assistance. Our information from the States indicates that more than 200 additional applications are being developed or have been submitted to designated State agencies for approval. The rate of applications has continued to increase. Last year in our hearings before this committee, we estimated there would be 225 applications in the fiscal year 1959, a jump from 175 received in the fiscal year 1958. Actually, we received 261 applications in the fiscal year 1959. In the first 6 months of this fiscal year, we have received 93 additional applications.

In the fiscal year 1959, we authorized planning assistance in 82 additional watersheds. In the first half of the fiscal year 1960, we have authorized planning on an additional 72 watersheds. It thus appears that our projection of 100 watersheds to be authorized for planning this year is realistic—perhaps conservative.

You will recall that your committee last year increased the budget recommendation for planning by $600,000 to a total of $4,900,000. This was concurred in by the Senate. Both committees directed that the level of planning should not be reduced from that of the previous year. In addition, several State and local governments have appropriated or otherwise made available approximately $1,100,000 to the planning activity during the current fiscal year. This increased planning activity is bringing about an imbalance between the number of watersheds planned and ready for installation of works of improvement and the amount of funds available and budgeted for installation. For this reason the fiscal year 1961 budget proposes a reduction in planning funds of $1,400,000 while proposing an increase in installation funds of $5 million.

The effect of the reduction in planning funds will be to reduce the number of federally financed planning parties from the equivalent of 42 at present to about 30, and the number of watersheds to be authorized for planning in 1961 from 100 to 70. No State would be denied planning assistance but a majority of the planning parties would have to serve two States jointly instead of one as at present.

CONSTRUCTION OBLIGATIONS RELATED TO AVAILABLE FUNDS

Now to consider the projects in the operations state. This will be the first year since enactment of Public Law 566 that construction obligations have come near using up available funds. You will recall the many delaying factors from the original enactment in August 1954 until last year. They included the extensive amendment of the Federal legislation by Public Law 1018 in August 1956; the requirements for enactment of necessary State legislation—and I might add that 40 States have now enacted more than 100 new acts to facilitate the Public Law 566 programs; the local responsibility for obtaining easements and providing contracting officers; and our task of staffing and training technical people to carry out our functions. It has taken nearly five years to get "over the hump" so to speak. For example, our carryover was 35 percent of total available funds in fiscal year 1957; it increased to 51 percent in fiscal year 1958. At the time of our hearings last year, Assistant Secretary Peterson said to this committee, "The watershed work is not going quite as fast as we had anticipated." This had hardly more than been said until local organizations from one end of the country to the other came through with their commitments in April, May, and June at a greatly increased rate.

(Discussion off the record.)

Mr. D. WILLIAMS. The consequence of this unanticipated increase in obligations in the latter part of the year was a reduction of the fiscal year 1959 carryover to 22 percent of the then available funds, or to about $9,500,000. The reduced carryover, together with the reduction in the watershed appropriation by $2,750,000 for the fiscal year 1960 from the amount appropriated for the fiscal year 1959, and the cumulative number of projects put into operations, has left us at this time with only limited funds for starting construction on additional projects during the remainder of the fiscal year. The projected $2,250,000 carryover at the end of this fiscal year is only seven percent of this year's available funds, which is a conservative operating contingency. You will recall the evidence we presented 2 years ago to show that 16 percent carryover is the average normally experienced in the programs of the Corps of Engineers, Bureau of Reclamation, and in our flood prevention program on the 11 authorized watersheds.

There were 180 projects authorized for operation at the end of fiscal year 1959 as compared with 100 at the end of fiscal year 1958. An additional 80 projects are expected to be authorized in the 1960 fiscal year. At this point, I would like to comment on our use of the term "authorized." This actually involves two steps. One step consists of resolutions from the legislative committees of the House and Senate authorizing appropriations, which is tantamount to project approval by these committees. If the project falls below certain size limits, it can be approved administratively without going to the legislative committees. Our procedure in the Department, however, requires subsequent authorization by the Administrator to activate a project, that is, to authorize our State conservationist to begin to provide technical and financial assistance to the sponsoring local organization. Of course, this second or final authorization is dependent upon the availability of funds to make the assistance possible.

As we explained in testimony last year, project operations, after formal authorization to begin work, involve two stages: First, advanced engineering and technical assistance; and second, actual construction. Our experience shows that, on the average, projects remain in the first stage about a year before they are ready to move into the second stage. As of January 1, 1960, 120 projects out of 212 authorized had moved from the stage of advanced engineering and technical assistance into the construction stage. It is expected that a total of 35 projects will move into the construction stage during this fiscal year.

We have taken certain steps to restrict the advance of projects into the construction stage, mainly by changing our regulations to reduce the allowable time elapsed between signing a project agreement obligating funds and the advertising for bids on the contract from 6 months to 30 days. This will avoid obligating and tying up funds for construction long before the local sponsors are ready to award contracts for actual construction. A clause in the project agreement now voids it unless the contract for construction is awarded in 90 days.

The budget proposes an increase of $5 million for the fiscal year 1961 to initiate construction on an estimated 32 additional projects involving an estimated total Federal cost of $28,900,000. Authorized projects to be moved into the construction stage will be carefully selected on the basis of criteria designed to advance those projects where the need is most urgent and local people have made the most extensive commitments of local resources. By keeping the commitment of total Federal funds for the projects that move into the construction stage during the year within the figure of $28,900,000 and with the reduced rate of planning, we feel that the requirements for Federal funds in succeeding years to finance works of improvement will be more nearly compatible with the resources that can be expected to be made available for this program in relation to the total financial requirements of the Department and the Federal Government.

### PILOT WATERSHEDS

During the fiscal year 1959, work was completed on nine additional pilot watershed projects. Out of the total of 62 such projects originally selected for development, 32 had been either completed or terminated prior to July 1, 1959. In this fiscal year, we anticipate completion of construction on an additional 15 projects, leaving 15 projects still under construction at the beginning of the fiscal year 1961. The completions will reduce the fund requirement to $2,500,000 as compared with $5,250,000 in the current fiscal year. The difference will be used to support the construction work on the larger number of Public Law 566 projects which started into construction in the fiscal year 1960.

In making the first appropriation for the pilot watershed projects, this committee expressed the intent that,

> As a part of the operation of these watersheds there will be installed the necessary instrumentation to measure and record the effects of these combined installations and practices on runoff and sedimentation and to analyze the factors contributing to success and efficiency of the work in the watersheds.

As of June 30, 1959, some project evaluation studies had been carried out in 55 of these projects. These studies were terminated in

18 projects in the fiscal year 1959, and will be completed in 24 additional projects by June 30, 1961.

It is planned to extend the period of the evaluation studies in approximately 13 pilot projects beyond the fiscal year 1961 in order not only to obtain more complete and adequate evaluation of these projects but also to provide needed information for planning and designing future Public Law 566 watershed projects. The information already obtained from the evaluation studies of the pilot projects has been highly useful in planning other watershed projects and in the preparation of detailed designs for structural measures.

### FLOOD PREVENTION

Now for flood prevention in the 11 authorized watersheds. The fiscal year 1961 budget proposes $15 million for continuing the work in the 11 authorized watershed projects. The appropriation requested in 1961 is the same amount proposed in the 1960 budget estimate and is $3 million less than the 1960 appropriation. This will permit the work of installing already planned watershed improvement measures to go forward at a reasonable rate. Sponsoring local organizations have already obtained the needed land, easements, and rights-of-way to cover the planned measures for 1961.

### RIVER BASIN ACTIVITIES

Participation with other Federal agencies and the States in surveys and investigations of the watersheds of various rivers under the provisions of section 6 of Public Law 566 and in the work of Interagency Water Resources and River Basin Committees is proposed to be continued at the same $1.1 million level in 1961 as this year.

The Department of Agriculture is cooperating with the Department of the Army in the survey and investigation, particularly with regard to consideration of the agricultural and watershed aspects of proposed developments, of portions or all of the watersheds of the Cape Fear River, N.C.; the Delaware River, N.Y., N.J., Pa., and Del.; the Potomac River, Md., Pa., Va., and W. Va.; the upper Mississippi River and Great Lakes Basin and the lower Mississippi River and tributaries in Arkansas, Kentucky, Louisiana, Mississippi, Missouri, and Tennessee. In response to an inquiry, consideration is now being given to cooperation with that Department in a survey of the Bayou Bartholomew Basin in Arkansas and Louisiana.

The Department of Agriculture is cooperating with the Department of the Interior on surveys and investigations of the participating projects of the Upper Colorado River storage project in Colorado, New Mexico, Utah, and Wyoming to appraise the direct agricultural benefits expected from those projects and to determine their relationships to lands and programs administered by this Department. It also is cooperating with State or local water resource agencies in surveys and investigations of all or portions of the watersheds of the Kansas River in Kansas; the Yazoo-Mississippi River in Mississippi; the Deschutes and upper Willamette Rivers in Oregon; and the Huron River in Michigan to help develop overall coordinated improvement programs for those basins. Arrangements are being worked out for participation in similar surveys of the watersheds of the Humboldt River in Nevada, the Sevier River in Utah, and the Tombigbee River in Mississippi and Alabama. These cooperative surveys stimulate State leadership in water resource development, use, and conservation.

They provide information on the opportunities for upstream watershed projects to contribute to the planning and improvement of larger river basins, and to the coordination of such watershed improvements and the larger works on the main streams. There is a continuing evidence of prospective requests from State and Federal agencies for participation by this Department in additional cooperative basin surveys.

Assistance is being provided the U.S. Study Commission for groups of Southeastern and Texas river basins in the developmental stage of their activities. Considerable material, based on the National Inventory of Soil and Water Conservation Needs and on field surveys, is being developed for these commissions at their request. Requests are anticipated for additional cooperative assistance to these commissions.

The Department is represented on the Inter-Agency Committee on Water Resources and its five River Basin Inter-Agency Committees which continue to facilitate the coordination of water and related land-resource activities of the member Federal departments and agencies and of the States in large areas of the West and Northeast.

### GREAT PLAINS CONSERVATION PROGRAM

We are providing assistance to farmers and ranchers in 346 counties of the 10 Great Plains States under the provisions of the Great Plains conservation program, Public Law 1021. In 1959, 25 additional counties were designated by the Secretary as eligible for the program.

On January 1, 1960, there were 3,842 long-range cost-sharing contracts in force on about 10,614,000 acres of farm and ranch lands in the critical plains area. About 2,860 additional applications for such contracts were on hand.

The 3,842 active contracts provide for estimated cost-share payments to farmers and ranchers of $19,376,000. About one-third of this amount had been paid. The average cost share per contract is about $5,000.

All practices needed in the conservation plans of operations, which are a part of each contract, are carried out according to planned schedules. This insures establishment of the practices before the end of the contract period.

One of the major objectives of the program, conversion of land unsuitable to continuous production of cultivated crops from such use to grassland, is being achieved to a highly satisfactory degree. The plans of operations in the 2,876 active contracts as of June 30, 1959, provided for converting 29.9 percent of the cropland, about two-thirds of which is cost shared from Public Law 1021 funds, to permanently vegetated rangeland or other noncropland use.

This practice, along with range reseeding, controlling competitive shrubs, livestock water development, and terracing are currently obligating about 72 percent of the cost share funds. This is also in keeping with the intent of the legislation.

First priority is given to those farming lands unsuited for continued production of cultivated crops or those who have rangelands that are depleted and subject to wind erosion. Cost shares earned may not exceed $2,500 times the number of years required to carry out the

practices in the plan of operations, which may range from 3 years to 10 years.

Additional restrictions for irrigation limit cost shares to no more than $2,500 or one-fourth of the contract obligations. The term of a contract may be shortened by refunding unused funds under the cost share formula of $2,500 times the number of years.

The budget provides for $10 million for the Great Plains conservation program in 1961, the same amount appropriated in the preceding 3 years of the program.

### COMPLETION OF EDEN-VALLEY PROJECT

Now we will consider the subject of water conservation and utilization. The budget does not contain an item this year for the program of land development, settlement, and sale on the Eden Valley Case-Wheeler project in Wyoming. Sufficient unexpended funds remain to complete this only remaining unfinished Case-Wheeler project, which has been scheduled for completion during the 1962 fiscal year.

All planned land development has been completed in accordance with the schedule worked out in cooperation with the Bureau of Reclamation and coordinated with its construction schedule for project irrigation facilities.

### ASSISTANCE TO OTHER PROGRAMS OF THE DEPARTMENT

Technical servicing of other programs such as rural development, agricultural conservation program, conservation reserve, Farmers Home Administration have been important considerations. The Service gave direct assistance to rural development program activities in 67 counties to which funds were allotted for increased activities. This aid amounted to a total of approximately 90 man-years, principally for soil survey and conservation farm planning technicians. The average was 1½ man-years' service to rural development program areas—some of more than one county—in 29 States and Puerto Rico. This assistance was supplemental to regular Service technical help to soil conservation districts which include rural development program landowners or operators.

The Service continued to assist agricultural conservation program participants with permanent-type practices on which cost sharing was requested. Such assistance was provided on about 361,000 farms and ranches.

The Service provided technical assistance to about 9,300 participants in the conservation reserve program. This included general counseling as well as direct assistance in selecting lands for contract and installing treatments for long-time protection.

Assistance to the Farmers Home Administration in its conservation and watershed loan programs continued.

I wish to thank the committee for this opportunity to present our budget information. We shall be happy to answer, or supply further information on, any questions you may have.

Mr. WHITTEN. Thank you, Mr. Williams. We on this subcommittee have been very much interested through the years in this whole conservation field. I think, by and large, that the membership

through the years has supported these efforts, particularly with regard to the Soil Conservation Service. Most of us have supported it at the present levels in other areas. It has been my personal belief that all the people in the Nation are very much dependent on conservation of land resources, water, and various other natural resources. Further, it has taken the individual efforts of landowners as well as the help of the various Government agencies which, in turn, have tried to help meet this problem.

## Conservation Operations

*Program and financing*

| | 1959 actual | 1960 estimate | 1961 estimate |
|---|---|---|---|
| Program by activities: | | | |
| Direct program costs: | | | |
| 1. Assistance to soil conservation districts and other cooperators (total direct program costs) [1] | $80,315,620 | $82,322,000 | $82,882,000 |
| 2. Relation of costs to obligations: Costs financed from obligations of other years, net (−) | −1,182,152 | | |
| Total direct program (obligations) | 79,133,468 | 82,322,000 | 82,882,000 |
| Reimbursable costs—obligations: | | | |
| 1. Assistance to soil conservation districts and other cooperators: Technical services to agricultural conservation program participants | 3,991,707 | 7,547,742 | 7,500,000 |
| Total program (obligations) | 83,125,175 | 89,869,742 | 90,382,000 |
| Financing: | | | |
| 1959 program obligated in 1958 | 846,814 | | |
| Advances and reimbursements from other accounts | −3,991,707 | −7,547,742 | −7,500,000 |
| Unobligated balance no longer available | 902,518 | | |
| New obligational authority | 80,882,800 | 82,322,000 | 82,882,000 |
| New obligational authority: | | | |
| Appropriation | $74,780,000 | $82,322,000 | $82,882,000 |
| Transferred from "Conservation reserve program," Commodity Stabilization Service (73 Stat. 51) | 6,102,800 | | |
| Appropriation (adjusted) | 80,882,800 | 82,322,000 | 82,882,000 |

[1] Includes capital outlay as follows: June 30, 1959, $2,587,330; 1960, $2,100,000; 1961, $2,100,000.

*Object classification*

| | 1959 actual | 1960 estimate | 1961 estimate |
|---|---|---|---|
| Total number of permanent positions | 13,283 | 13,562 | 13,563 |
| Full-time equivalent of all other positions | 804 | 1,067 | 1,124 |
| Average number of all employees | 12,115 | 12,976 | 13,032 |
| Number of employees at end of year | 14,670 | 14,936 | 15,070 |
| Average GS grade and salary | 6.7 $5,491 | 6.9 $5,520 | 6.9 $5,556 |
| Personal service obligations: | | | |
| Permanent positions | $63,571,539 | $67,216,785 | $67,801,700 |
| Positions other than permanent | 2,825,899 | 3,765,143 | 3,991,500 |
| Other personal services | 506,119 | 782,288 | 549,800 |
| Total personal service obligations | 66,903,557 | 71,764,216 | 72,343,000 |
| Direct obligations: | | | |
| 01 Personal services | 64,210,431 | 66,001,000 | 66,585,000 |
| 02 Travel | 2,153,458 | 2,300,000 | 2,320,000 |
| 03 Transportation of things | 365,617 | 410,000 | 410,000 |
| 04 Communication services | 904,367 | 906,000 | 910,000 |
| 05 Rents and utility services | 1,852,100 | 1,900,000 | 1,860,000 |
| 06 Printing and reproduction | 444,080 | 470,000 | 475,000 |
| 07 Other contractual services | 503,151 | 510,000 | 1,027,000 |
| Services performed by other agencies | 109,644 | 210,000 | 150,000 |
| 08 Supplies and materials | 3,079,913 | 3,190,000 | 3,100,000 |
| 09 Equipment | 2,162,648 | 2,200,000 | 1,700,000 |
| 10 Lands and structures | 14,630 | | |
| 11 Grants, subsidies, and contributions | 4,076,961 | 4,100,000 | 4,200,000 |
| 13 Refunds, awards, and indemnities | 80,027 | 80,000 | 80,000 |
| 15 Taxes and assessments | 48,934 | 50,000 | 70,000 |
| 1959 program obligated in 1958 | −846,814 | | |
| Subtotal | 79,139,147 | 82,327,000 | 82,887,000 |
| Deduct quarters and subsistence charges | 5,679 | 5,000 | 5,000 |
| Total direct obligations | 79,133,468 | 82,322,000 | 82,882,000 |
| Reimbursable obligations: | | | |
| 01 Personal services | 2,693,126 | 5,763,216 | 5,758,000 |
| 02 Travel | 9,297 | 23,681 | 24,000 |
| 04 Communication services | 226 | | |
| 06 Printing and reproduction | 1,111 | 1,066 | 1,000 |
| 07 Other contractual services | 812,342 | 1,169,260 | 1,143,300 |
| 08 Supplies and materials | 322,343 | 276,270 | 259,500 |
| 11 Grants, subsidies, and contributions | 143,440 | 290,141 | 290,000 |
| 15 Taxes and assessments | 9,822 | 24,108 | 24,200 |
| Total reimbursable obligations | 3,991,707 | 7,547,742 | 7,500,000 |
| Total obligations | 83,125,175 | 89,869,742 | 90,382,000 |

## Justification Data

Mr. Whitten. Taking up conservation operations, we shall insert in the record at this point page 203 of the justifications.

(The page follows:)

*Conservation operations*

| | |
|---|---|
| Appropriation Act, 1960 and base for 1961 | $82,322,000 |
| Budget estimate, 1961 | 82,882,000 |
| Increase | +560,000 |

*Summary of increases and decreases, 1961*

| | |
|---|---|
| Decrease due to providing a direct appropriation to the General Services Administration for certain leasing costs previously paid from this appropriation | −40,000 |
| For employee health benefit costs pursuant to Public Law 86-382 | +600,000 |

*Project statement*

| Project | 1959 | 1960 (estimated) | Increase or decrease | | 1961 (estimated) |
|---|---|---|---|---|---|
| | | | Health benefit costs (Public Law 86-382) | Other | |
| 1. Assistance to soil conservation districts and other cooperators: | | | | | |
| (a) Planning, application, and maintenance of practices | $79,410,590 | $81,742,000 | +$597,000 | −$40,000 | $82,299,000 |
| (b) Observational field testing of conservation plant materials | 569,692 | 580,000 | +3,000 | | 583,000 |
| Subtotal [1] | 79,980,282 | 82,322,000 | +600,000 | −40,000 | 82,882,000 |
| Unobligated balance | 902,518 | | | | |
| Total employee health benefit costs (Public Law 86-382) | | | [+600,000] | | [+600,000] |
| Total available or estimate | [2]80,882,800 | 82,322,000 | +600,000 | −40,000 | 82,882,000 |
| Transferred from conservation reserve program, Commodity Stabilization Service | −6,102,800 | | | | |
| Total appropriation | 74,780,000 | | | | |

[1] Represents obligations. Applied costs for 1959 are $80,315,620. The difference of $335,338 reflects, primarily, the excess of equipment used over orders placed in that year.
[2] Includes $846,814 obligated in 1958 under the advance procurement authorization (Public Law 85-386).

COORDINATION OF SCS AND ACP PROGRAMS

Mr. WHITTEN. Could you give us any indication of how much of the work that has been done where your technicians have provided the technical assistance and the agricultural conservation program has contributed toward the work that was done to carry out the plan.

Do you have any figures you would be able to supply for the record?

Mr. WILLIAMS. Mr. Chairman, that, of course, is an extremely difficult thing to accurately appraise, because it is the summation of every kind of a private effort, every kind of a public effort, local, State and Federal, and so forth. I am very hopeful that the conservation needs inventory, which we discussed a year or two ago, and which is now coming to completion, and will be completed and fully summarized before we meet again in our next budget presentation, will give us for the first time, on a scientifically accurate basis of statistical sampling, projections, irrespective of who or what created the impact, of just what is the situation with respect to land use and conservation treatment.

As nearly as we can estimate, lacking that kind of summation at this time, we feel that there is something like 300 million acres of land which are now adequately treated, or about 30 percent of the farms and ranches in the country that have adequate conservation programs. That is purely an estimate, and we hope that with the results of the conservation needs inventory, that we can see ahead in terms of what the needs are, as measured against the impact of population pressures a few years from now.

Mr. PETERSON. Mr. Chairman, might I add to that somewhat a little more specifically to the question. While we do not have figures to indicate the impact of the ACP program upon the application to the land of conservation practices within districts, the districts them-

selves made a survey, I believe 2 years ago, in which the report that they got from their individual districts shows that they themselves regarded the ACP as second in value to the conservation operations, or technical assistance. While that does not measure precisely the contribution of the ACP program, it is indicative of how the conservation districts themselves regard that program.

Mr. WHITTEN. Thank you, Mr. Peterson. I, too, recall that report myself, and not to take issue with the report in the least, but in a survey by the Soil Conservation Service, and its board of commissioners, one would presume that since they worked with it, they quite naturally put their program at the top.

Mr. PETERSON. That is quite true.

Mr. WHITTEN. That is not said in criticism, but just in recognition of a situation, and I do not minimize Soil Conservation Service, either. I don't know but what it should be at the top, because these other things we should do should probably follow technical advice, rather than precede it. So I am just saying that even though ACP was second in value in the survey by the soil conservation districts that does not necessarily measure the relative importance of the conservation program. Personally, on this committee, I have felt that extension work was highly important in bringing to the farmers education and all the things that the Extension Service does. Once that is done, presumably an intelligent farmer would then recognize the need for doing right by the land, both for himself and for the future.

Once he recognizes that, for the Extension Service, he would turn to technicians to advise him as to what should be done, and once that is decided, it would follow, in my opinion at least, that he would turn to those Federal agencies which might help to get the job done.

So I think each of these does have a place in the overall program. Of course, I go behind all of that, and make my point, in which I firmly believe, that a fair net return, a fair farm income, will probably get more work done than most anything else because, in the absence of the farmers having something to do with, there is not much he can do; so I think all of this is related.

Mr. PETERSON. I believe your observation is entirely correct. Obviously, the more funds that a farmer has available to permit him to go forward with a conservation program, the more he is apt to do it. I would think that the further conclusion might be drawn, following your line of thought, that each of these programs is complementary to the other. They form a base upon which the conservation effort may go forward. I personally believe that each of them makes a contribution. How you measure it specifically might be a matter of opinion.

### SCS ROLE IN FORMULATION OF ACP PRACTICE

Mr. WHITTEN. It depends on the individual. In connection with that, I was just trying to see what the relationship is. In the selection of practices for the inclusion in the national handbook, I believe, in theory, and I hope in fact, that these originate at the local level, work up through the county level to the district level, and from there to the Federal level, where, in turn, the practices are approved in the national catalog, and in turn work back down for selection.

What part does the Soil Conservation Service have to play in the formulation of ACP? Are you on any boards at the State or National level, where you would have your say as to what might be appropriate, or is that handled separately from your service?

Mr. WILLIAMS. Mr. Chairman, at the county level, as well as at the State level, there is an ACP program development group which consists of not only the ASC committee, but also of Forest Service representatives, of the Soil Conservation representatives. At the county level, that would be the work unit conservationist. At the State level, it would be the State conservationist.

Mr. WHITTEN. By and large, you do have an opportunity for whatever influence you have, to say your piece toward getting things that in turn would help carry out the results of your farm planning, and things of that sort?

Mr. WILLIAMS. That's correct. We have the opportunity of making recommendations with respect to programs in the county and in the State, including degrees of emphasis for certain types of land use, certain types of practices, and so on.

Mr. WHITTEN. Does the ACP handbook follow, generally speaking, the guidelines that you have in your own service?

Mr. WILLIAMS. I would say to a very large extent there is a very harmonious meeting of minds at the county and State level. I am sure there are exceptions in various places as to the degree of emphasis to certain phases of the program should receive. I think it is true, Mr. Chairman, that historically our folks have given emphasis to the long-term conservation objectives rather than immediate or what might be temporary.

Mr. WHITTEN. In that field, you have succeeded largely by having your views incorporated in the handbook, and where it has varied from your recommendations, usually it has been because the practice wasn't in the approved list, but because of selections different from the recommendations at the local level. Would that be about true?

Mr. WILLIAMS. I would not say that that has taken place.

Mr. WHITTEN. I am not trying to put you on the spot, but can you tell the committee of any practices that your Service felt should be in the handbook that you didn't succeed in getting in there? That would be the test. I am not saying the handbook follows your views entirely, but have there been those things you thought should be in the handbook, that were not included?

Mr. WILLIAMS. I am sorry that I cannot name specific instances at the moment, but I am sure there have been cases in which recommendations for a given year, for one reason or another, could not be, in the judgment of the county ASC committee, or others, taken on that year. It might have been.

Mr. WHITTEN. In the national catalog, have there been places where you didn't get your views included? The distinction I was trying to make, is that it is one thing if you are not getting your views where it is possible for the farmer to buy them, to accept them. It is another if you get them in the book, but at the local level they differ with you as to what is more essential.

Mr. WILLIAMS. So far as I know, Mr. Chairman, all of the practices included in the national handbook, I think the full list includes the viewpoints of the Service. I might ask Mr. Hollis Williams if he is aware of any exceptions to that.

Mr. H. WILLIAMS. No, sir; I am not.

Mr. WHITTEN. I was under that impression. Of course, when you work back down, you run into that matter of differences of opinion, and different views.

PROPOSED BUDGET FOR RECLAMATION AND PUBLIC WORKS

May I say for the record as I have earlier, that I offered the motion last year in the Appropriations Committee to restore the new starts that were in the appropriation for public works, which later resulted in the Congress accepting that and overriding the President's veto.

I asked earlier that in this hearing we list the increases in the budget this year over last year's budget for reclamation and for public works.

Incidentally, I am glad to see the Bureau of the Budget and the President come through with that, in line with what I believe is sound—that is, take care of our own country because, after all, everything else is dependent on it.

It is disturbing in the same budget, though they have come around on that, to see them rather drastically cut this work through the Soil Conservation Service which, in my opinion, reaches a far greater number of people on a far broader base throughout the United States.

Have you had a chance to bring those figures together as to what is in this year's budget in the way of increases above last year's budget for reclamation and domestic public works?

Mr. WILLIAMS. I don't have those figures with me. Hollis, do you have them?

Mr. H. WILLIAMS. I think we have them.

Mr. WHITTEN. Could we have those inserted in the record at this point?

(Information requested follows:)

*1960 and 1961 budget estimates and the 1960 appropriations for Corps of Engineers (rivers and harbors and flood control), Bureau of Reclamation, and Soil Conservation Service*

| Item | 1960 budget estimates (January 1959) | 1960 appropriation | 1960 estimated obligations in 1961 budget | 1961 budget estimates (January 1960) |
|---|---|---|---|---|
| CORPS OF ENGINEERS—RIVERS AND HARBORS AND FLOOD CONTROL | | | | |
| Current appropriations: | | | | |
| General investigations | $9,000,000 | $10,481,250 | $11,306,581 | $9,500,000 |
| Construction general | 660,000,000 | 661,356,247 | 709,115,751 | 718,424,000 |
| Operation and maintenance, general | 113,500,000 | 114,934,950 | 119,496,002 | 125,000,000 |
| General expenses | 12,640,000 | 12,324,000 | 11,639,550 | 12,120,000 |
| Flood control, Mississippi River and tributaries | 68,000,000 | 69,068,512 | 70,280,547 | 69,500,000 |
| United States section, Saint Lawrence River joint project | 40,000 | 39,000 | 39,000 | 30,000 |
| International Navigation Congresses | | | | 180,000 |
| Permanent appropriations: | | | | |
| Payment to States, Flood Control Act of 1954, Army | 1,500,000 | 1,500,000 | 1,435,101 | 1,500,000 |
| Rivers and harbors and flood control, Army special expense funds: | | | | |
| Hydraulic mining in California, debris fund | 18,000 | 18,000 | 32,739 | 18,000 |
| Maintenance and operation of dams and other improvements of navigable waters [1] | 150,000 | 150,000 | 152,240 | 150,000 |
| Total, Corps of Engineers, rivers and harbors and flood control | 864,848,000 | 869,871,959 | 923,497,511 | 936,422,000 |
| BUREAU OF RECLAMATION | | | | |
| Current appropriations: | | | | |
| General investigations | 5,000,000 | 4,668,992 | 5,041,949 | 4,650,000 |
| General investigations (special foreign currency program) | | | | 4,957,000 |
| Construction and rehabilitation | 135,410,000 | 132,466,171 | 141,737,918 | 173,950,000 |
| Operation and maintenance | 29,131,000 | 28,402,725 | 32,141,454 | 31,900,000 |
| General administrative expenses | 4,400,000 | 4,290,000 | 4,290,000 | 4,320,000 |
| Loan program | 220,000 | 11,227,587 | 16,204,729 | 18,437,000 |
| Disposal of Coulee Dam community | | | [2] 21,000 | 15,000 |
| Boulder City municipal fund | | | | 150,000 |
| Upper Colorado River Basin fund | 77,035,000 | 74,459,775 | 58,534,610 | 71,600,000 |
| Permanent appropriations: | | | | |
| Disposal of Coulee Dam community | 97,000 | 60,000 | 66,630 | 16,000 |
| Boulder City municipal fund | 270,000 | 270,000 | 193,545 | 8,000 |
| Colorado River Dam fund, Boulder Canyon project: | | | | |
| Payment of interest on advances from the Treasury | 3,200,000 | 3,200,000 | 3,200,000 | 3,200,000 |
| Payment to States of Arizona and Nevada | 600,000 | 600,000 | 600,000 | 600,000 |
| Operation, maintenance, and replacement of project works, North Platte project | 4,000 | | 1,784 | 10,000 |
| Payment to Farmers' Irrigation District (North Platte project, Nebr.-Wyo.) | 8,000 | 8,000 | 8,000 | 8,000 |
| Refunds and returns | 125,000 | 125,000 | 222,491 | 92,000 |
| Total, Bureau of Reclamation | 255,500,000 | 259,778,250 | 262,264,110 | 313,913,000 |
| SOIL CONSERVATION SERVICE | | | | |
| Current appropriations: | | | | |
| Flood prevention (works of improvement) | 15,000,000 | 18,000,000 | 20,845,992 | 15,000,000 |
| Watershed protection: | | | | |
| 1. Investigations and planning | 4,300,000 | 4,900,000 | 4,900,000 | 3,500,000 |
| 2 Installation of works of improvement | 13,700,000 | 15,750,000 | 23,026,964 | 22,150,000 |
| 3. Loans and related expenses | 1,000,000 | 1,000,000 | 1,000,000 | 1,000,000 |
| 4. Surveys and investigations of water resources | 1,000,000 | 1,100,000 | 1,100,000 | 1,100,000 |
| Total, watershed protection | 20,000,000 | 22,750,000 | 30,026,964 | 27,750,000 |
| Conservation operations | 81,072,000 | 82,322,000 | 82,322,000 | 82,882,000 |
| Great Plains conservation program | 12,500,000 | 10,000,000 | 10,629,120 | 10,000,000 |
| Water conservation and utilization projects | 75,000 | 75,000 | 75,000 | |
| Total, Soil Conservation Service | 128,647,000 | 133,147,000 | 143,899,076 | 135,632,000 |

[1] $136 in unpaid undelivered orders deducted from this item to reflect obligations.
[2] Proposed supplemental appropriation.

BUDGET FOR CONSERVATION OPERATIONS

Mr. WHITTEN. Turning, then, we notice in your operations you have an increase of $560,000. That is to take care of——

Mr. WILLIAMS. Federal employee health benefit costs.

Mr. WHITTEN. Yes. No special provision, then, is made for the new districts that you contemplate during the coming year, though you contemplate new districts—or do you contemplate that the number might stay fairly consistent due to this reorganization, you might say, of smaller districts into larger ones?

Mr. WILLIAMS. We have estimated the net increase in fiscal year 1961 of 20 new districts.

Mr. WHITTEN. In those 20 new districts, in the absence of some provision, would mean you just spread your people a little more thinly? Is that the way you see it?

Mr. WILLIAMS. No increase in the budget to take care of them, so that would be the only way it could be done.

SCS PARTICIPATION IN RURAL DEVELOPMENT PROGRAM

Mr. WHITTEN. Mr. Williams, I differ a little bit with some of my colleagues, just judging by the line of questioning, as to the reason for considerable improvements in the rural development counties. I recognize it, but we find that in those 200 special counties, they get soil maps earlier, and they get loans from the FHA, when they can't get them in other countries. They get five or six additional employes that they don't get in other counties. That makes it clear to me that they should show a rapid rate of progress, as compared with the average county, which is not the beneficiary of these various government programs. How do you handle your work in these 200 rural development counties? Do you give them an extra soil conservationist, or do you just put a little added load on your district people? How do you meet that problem?

Mr. WILLIAMS. Mr. Chairman, about 3 years ago, I believe it was, our budget was increased, the conservation operation budget. At the same time, there was an increase for the Extension Service to an amount approximating $700,000, I believe it was, Mr. Grant, which had the net effect of increasing our base by that much, or providing additional assistance to rural development counties and areas. There has been no increase in the budget for that purpose since that time. Those funds were used to employ additional people in those particular counties or areas. That varied as to the nature of the personnel. In some cases it was a second soil conservationist to assist with high priority planning of low-income farms in the area. In some cases, it was to step up the soil survey information. In some cases it was other things, which averaged out about 1.5 man-years of time beyond what we would normally be able to staff those particular soil conservation districts.

The type of work done is to step up the rate of progress in the type of work with which we are assisting soil conservation districts, in recognition that there are farms that could make land use adjustments, that might improve their income, their lot in that particular area.

COST OF STAFFING NEW SOIL CONSERVATION DISTRICTS

Mr. WHITTEN. What is your estimate as to what it would cost, what additions would have to be made to the budget to enable you to staff these 20 expected new districts? In the first place, they will not materialize promptly on the first of July under normal course of events. If it were to be presumed that they would be staggered on an even basis throughout the year, I take it that would be equivalent to 10 districts for a full year.

What would be your estimate as to what would it take to provide full funds for 10 districts for a year, presuming that these would come in about one and two-thirds or one and a half per month?

Mr. WILLIAMS. Mr. Chairman, the funds allowed by this committee last year, or by the Congress, in our appropriation, permitted us to distribute approximately $28,000 per soil conservation district to the 30 that were anticipated to be organized this fiscal year. Actually, in terms of the estimated rate of timing at which the 20 would be organized, we estimated $420,000 would be needed next year for the 20 districts. That assumes a little faster rate than just 10 for a full year. If it were 10 for a full year, at the rate of $28 thousand, it would be $280,000.

## WATERSHED PROTECTION

*Program and financing*

| | 1959 actual | 1960 estimate | 1961 estimate |
|---|---|---|---|
| Program by activities: | | | |
| 1. Investigations and planning | $4,664,033 | $4,900,000 | $3,500,000 |
| 2. Installation of works of improvement | 14,200,505 | 22,815,581 | 28,260,000 |
| 3. Loans and related expense | 59,954 | 900,000 | 1,140,000 |
| 4. Surveys and investigations of water resources programs | 888,508 | 1,100,000 | 1,100,000 |
| Total accrued expenditures [1] | 19,813,000 | 29,715,581 | 34,000,000 |
| Unpaid undelivered orders brought forward | −5,232,748 | −18,188,617 | −18,500,000 |
| Unpaid undelivered orders carried forward | 18,188,617 | 18,500,000 | 14,500,000 |
| Total program (obligations) | 32,768,869 | 30,026,964 | 30,000,000 |
| Financing: | | | |
| Unobligated balance brought forward | −16,795,833 | −9,526,964 | −2,250,000 |
| Unobligated balance carried forward | 9,526,964 | 2,250,000 | |
| Appropriation (new obligational authority) | 25,500,000 | 22,750,000 | 27,750,000 |

[1] Includes capital outlay as follows: June 30, 1959, $752,933; 1960, $229,500; 1961, $230,000

## *Object classification*

| | 1959 actual | 1960 estimate | 1961 estimate |
|---|---|---|---|
| SOIL CONSERVATION SERVICE | | | |
| Total number of permanent positions | 1,440 | 1,725 | 2,014 |
| Full-time equivalent of all other positions | 195 | 239 | 244 |
| Average number of all employees | 1,586 | 1,853 | 2,094 |
| Number of employees at end of year | 1,659 | 2,020 | 2,239 |
| Average GS grade and salary | 6.7 $5,491 | 6.9 $5,520 | 6.9 $5,556 |
| 01 Personal services: | | | |
| Permanent positions | $8,091,147 | $9,500,000 | $10,920,000 |
| Positions other than permanent | 662,426 | 820,000 | 874,000 |
| Other personal services | 146,729 | 240,000 | 186,000 |
| Total personal services | 8,900,302 | 10,560,000 | 11,980,000 |
| 02 Travel | 765,049 | 835,000 | 875,000 |
| 03 Transportation of things | 61,928 | 70,000 | 75,000 |
| 04 Communication services | 126,062 | 138,000 | 140,000 |
| 05 Rents and utility services | 167,154 | 182,000 | 183,000 |
| 06 Printing and reproduction | 149,515 | 171,000 | 170,000 |
| 07 Other contractual services | 4,017,568 | 3,687,000 | 2,100,000 |
| Services performed by other agencies | 192,744 | 240,000 | 240,000 |
| 08 Supplies and materials | 368,577 | 375,000 | 375,000 |
| 09 Equipment | 589,733 | 600,000 | 600,000 |
| 11 Grants, subsidies, and contributions | 15,909,322 | 10,591,471 | 10,739,760 |
| 13 Refunds, awards, and indemnities | 6,488 | 9,000 | 10,000 |
| 15 Taxes and assessments | 15,141 | 20,000 | 22,500 |
| Total, Soil Conservation Service | 31,269,583 | 27,478,471 | 27,510,260 |
| ALLOTMENT ACCOUNTS | | | |
| Total number of permanent positions | 76 | 79 | 79 |
| Full-time equivalent of all other positions | 25 | 34 | 29 |
| Average number of all employees | 106 | 121 | 118 |
| Number of employees at end of year | 90 | 100 | 104 |
| Average GS grade and salary | 7.2 $5,869 | 7.3 $5,891 | 7.3 $5,909 |
| Averzge salary of ungraded positions | $4,553 | $4,754 | $4,754 |
| 01 Personal services: | | | |
| Permanent positions | $526,462 | $583,429 | $601,836 |
| Positions other than permanent | 96,835 | 130,284 | 110,967 |
| Other personal services | 3,241 | 5,239 | 2,983 |
| Total personal services | 626,538 | 718,952 | 715,786 |
| 02 Travel | 75,493 | 111,359 | 111,610 |
| 03 Transportation of things | 3,508 | 4,230 | 4,200 |
| 04 Communication services | 5,921 | 10,210 | 10,200 |
| 05 Rents and utility services | 4,267 | 5,592 | 5,500 |
| 06 Printing and reproduction | 952 | 1,200 | 1,000 |
| 07 Other contractual services | 133,429 | 212,795 | 214,900 |
| Services performed by other agencies | 39,528 | 60,396 | 60,000 |
| 08 Supplies and materials | 27,354 | 55,076 | 55,505 |
| 09 Equipment | 22,546 | 19,644 | 19,000 |
| 11 Grants, subsidies, and contributions | 155,773 | 396,873 | 359,854 |
| 13 Refunds, awards, and indemnities | 555 | 500 | 500 |
| 15 Taxes and assessments | 1,419 | 1,816 | 1,835 |
| 16 Investments and loans | 402,500 | 950,000 | 930,000 |
| Subtotal | 1,499,783 | 2,548,643 | 2,489,890 |
| Deduct quarters and subsistence charges | 497 | 150 | 150 |
| Total, allotment accounts | 1,499,286 | 2,548,493 | 2,489,740 |
| Total obligations | 32,768,869 | 30,026,964 | 30,000,000 |
| Obligations are distributed as follows: | | | |
| Soil Conservation Service | $31,269,583 | $27,478,471 | $27,510,260 |
| Forest Service | 694,622 | 1,111,000 | 1,050,000 |
| Agricultural Research Service | 279,817 | 317,215 | 318,000 |
| Farmers Home Administration | 427,454 | 1,000,000 | 1,000,000 |
| Department of the Interior | 97,393 | 120,278 | 121,740 |

JUSTIFICATION OF THE ESTIMATES

Mr. WHITTEN. Next is "Watershed Protection." The justifications will be inserted in the record at this point.

(The information referred to follows:)

*Watershed protection*

| | |
|---|---|
| Appropriation Act, 1960, and base for 1961 | $22,750,000 |
| Budget estimate, 1961 | 27,750,000 |
| Increase | +5,000,000 |

NOTE.—In addition to the proposed increase in appropriation for 1961, there will also be available $2,250,000 estimated unobligated balance to be carried forward from prior years for use in 1961.

*Summary of increases and decreases, 1961 (on basis of available funds)*

| | |
|---|---|
| Decrease in project investigations and development of watershed work plans | −$1,400,000 |
| Decrease in the Federal share of the cost of installing planned works of improvement in the pilot watersheds due to completion of work | −2,750,000 |
| Net increase for installation of works of improvement in Public Law 566 watershed projects | +4,123,036 |

*Project statement (on basis of available funds)*

| Project | 1959 | 1960 (estimated) | Increase (+) or decrease (−) | 1961 (estimated |
|---|---|---|---|---|
| 1. Investigations and planning | $4,663,610 | $4,900,000 | [1] −1,400,000 | $3,500,000 |
| 2. Installation of works of improvement: | | | | |
| (a) "Pilot" demonstration watersheds | 5,578,067 | 5,250,000 | [2] −2,750,000 | 2,500,000 |
| (b) Public Law 566 wstersheds | 21,213,716 | 17,776,964 | [3] +4,123,036 | 21,900,000 |
| 3. Loans and related expense | 427,454 | 1,000,000 | | 1,000,000 |
| 4. Surveys and investigations of water resources programs | 886,022 | 1,100,000 | | 1,100,000 |
| Total employee health benefit costs (Public Law 86-382) | | | | (105,000) |
| Total estimated obligations [4] | 32,768,869 | 30,026,964 | −26,964 | 30,000,000 |
| Unobligated balance brought forward | −16,795,833 | −9,526,964 | +7,276,964 | −2,250,000 |
| Unboligated balance carried forward | 9,526,964 | 2,250,000 | −2,250,000 | |
| Total appropriation or estimate | 25,500,000 | 22,750,000 | +5,000.000 | 27,750,000 |

[1] See (1) in text below.
[2] See (2) in text below.
[3] See (3) in text below.
[4] Applied costs for 1959 are $19,813,000. The difference of $12,955,869 reflects, primarily, the lag in the installation of structural measures for which obligations were incurred in the 1959 and prior fiscal years. For the 1960 and 1961 fiscal years applied costs are estimated at $29,715,581 and $34,000,000 respectively. In 1960 it is estimated there will still be a slight lag in the installation of structural measures for which prior year obligations were incurred; however, because of a recent change in policy under which obligations for structural measures will not be incurred until the local organization is ready to award a construction contract, applied costs will exceed obligations in the 1961 fiscal year.

INCREASES AND DECREASES (ON BASIS OF AVAILABLE FUNDS)

A net decrease of $26,964 for the watershed protection and flood prevention work as follows:

*(1) A decrease of $1,400,000 in the cost of project investigations and the development of watershed work plans*

Recent planning activities have been proceeding at a level which would result in the completion of project plans somewhat in excess of the number on which works of improvement can be initiated. Therefore a reduction in the rate of watershed work plan development is recommended in order to achieve a closer balance with the proposed schedule for initiating the installation of structural measures in about 32 new watersheds in 1961.

The following table shows the number of project applications received through June 30, 1959, and estimated for 1960 and 1961, the progress made and schedules for planning of projects authorized under Public Law 566, 83d Congress:

| Item | 1955-58 | 1959 | 1960 (estimated) | 1961 (estimated) | Total, 1955-61 (estimated) |
|---|---|---|---|---|---|
| Applications received | 887 | 261 | 275 | 300 | 1,723 |
| Watersheds approved for planning | 364 | 82 | 100 | 70 | 616 |
| Watersheds approved for operation | 100 | 80 | 80 | 50 | 310 |
| Watershed installation completed | (2) | (3) | (5) | (15) | (25) |
| Planning suspended or project not suitable for planning | 371 | 11 | 18 | 25 | 425 |

As the rate of planning is reduced some positions vacated due to turnover of personnel would not be filled. Planning specialists and aids now engaged in watershed planning activities would be reassigned to the extent possible to installation of works of improvement and to other programs of the Service as vacancies arise or needs develop for such personnel in those activities.

*(2) A decrease of $2,750,000 in the Federal share of the cost of installing planned works of improvement in the pilot watersheds due to completion of work*

All scheduled work in six pilot watershed projects is expected to be completed in the current fiscal year. Only project evaluation and the preparation of final reports remains to be completed for an additional 9 projects. This will reduce the number of pilot watersheds in which the Department is installing works of improvement to 15 for which funds will be required in 1961. Hence, a reduction in the amount of $2,750,000 is proposed in 1961 in the level of operations to be carried on in the pilot watershed projects.

*(3) A net increase of $4,123,036 for installation of works of improvement in Public Law 566 watershed projects*

This net increase consists of an increase of $5 million to begin construction work on an estimated 32 additional watershed projects, and a decrease of $876,964 in obligations for advance engineering and technical assistance and for construction on projects initiated prior to July 1, 1960.

It is estimated that $5 million will be used in 1961 to initiate the installation of structural works of improvement in about 32 additional watersheds during the 1961 fiscal year. Designs and specifications developed by the Federal Government would be furnished to local sponsoring organizations in watershed projects. These organizations would award the construction contracts for installation of planned structures. Technical assistance would continue to be furnished to guide the installation work and acceleration of land treatment.

At the close of the fiscal year 1960 there will be an estimated 250 Public Law 566 watershed projects in operation, of which 118 will be receiving advance engineering and technical assistance only, and about 132 will be in the construction stage. During 1961 it is estimated that 50 additional watershed projects will be authorized for advance engineering and technical assistance. This assistance is necessary in order to provide sponsoring local organizations with necessary designs and specifications for structural measures and with precise delineation of easement areas. The easement data is needed by the local people to enable them to secure necessary easements and rights-of-way which is a part of their contribution to the program of installing structural works of improvement. Funds available for projects on which construction work is initiated prior to July 1, 1960, including a proposed carryover of $2,250,000 of prior year appropriations, will total $16,900,000, a reduction of $876,964 in the amount to be applied to these projects in 1960.

CHANGES IN LANGUAGE

The estimates include proposed changes in the language of this item as follows (new language underscored; deleted matter enclosed in brackets):

For expenses necessary * * * in accordance with the Watershed Protection and Flood Prevention Act, approved August 4, 1954, as amended (16 U.S.C.

1001-[1007] *1008*, and the provisions of the Act of April 27, 1935 (16 U.S.C. 590a-[590]f), * * * as amended by section 15 of the Act of August 2, 1946 (5 U.S.C. 55a): *Provided further, That annual accrued expenditures under this appropriation account, covering amounts becoming payable as a result of obligations incurred both in the current fiscal year and in prior fiscal years, shall not exceed $37,400,000: Provided further, That this limitation shall not include annual, accrued expenditures attributable to reimbursable work performed under this appropriation account.*

The first change would add reference to section 1008 of title 16 of the United States Code in the appropriation language. This change is proposed in order to include reference to the amendment to the Watershed Protection and Flood Prevention Act approved August 12, 1958, Public Law 85-624 (72 Stat. 567). This amendment to the act provides that the Secretary of the Interior shall be notified by the Department of the approval to assist local organizations in the preparation of plans for works of improvement. Under this amendment the Interior Department may, if it so desires, make surveys and investigations of the watershed areas and prepare reports to the Secretary of Agriculture concerning its recommendations for the conservation and development of wildlife resources and participate with this Department in the preparation of plans for works of improvement that are acceptable to the local organization.

The second change removes an unnecessary number in the language citation. It is merely editorial and would have no effect on the program.

The third change in language would provide for the establishment of an accrued expenditure limitation for this appropriation item pursuant to Public Law 85-759 (72 Stat. 852).

In carrying out the responsibilities under the "Watershed protection" appropriation, four budget projects were established, as follows:

(1) Investigations and planning.
(2) Installation of works of improvement.
(3) Loans and related expense.
(4) Surveys and investigations of water resources programs.

The concepts under which accrued expenditures (goods and services received, or work "put in place") occur as contrasted to the incurrence of obligations (goods and services ordered, contracts awarded, or project agreements signed) under each of these projects, as well as other aspects of the accrued expenditure limitation, are discussed in the following paragraphs.

*Administrative-type costs.*—In projects 1 and 4 "Investigations and planning" and "Surveys and investigations of water resources programs," obligations are incurred primarily for personal services and other operating expenses. Such obligations are virtually the same as accrued expenditures, except for minor differences due to goods and services ordered but not received as of the close of a particular accounting period.

*Construction costs.*—In the project for "Installation of works of improvement," obligations differ substantially from accrued expenditures. In the "pilot" watersheds, obligations for installing structural measures are incurred when a construction contract is let by the Service or in a few cases when a project agreement is entered into with the sponsoring local organization for installation of the works of improvement. Obligations are incurred in the "Public Law 566" watersheds when the project agreement is entered into with the local organization which is required by law to let and administer the contract for the installation of the watershed works of improvement.

Project agreements signed (obligations) for the installation of structural measures may not result in substantial "work in place" (accrued expenditures) for many months due to delay in award of contracts, default of contractors, the seasonal nature of construction work, unexpected bad weather, loss of or unavoidable delay in recruitment of key personnel, etc.

*Loans.*—Under the project for "Loans and related expense," loans are made to local organizations through the Farmers Home Administration to help defray the local share of the cost of the watershed protection project. Generally it is necessary to approve a watershed protection loan for the entire needs of the applicant at one time. The approval of the loan constitutes an obligation. Therefore, obligational authority must be available in an amount sufficient for the entire loan at the time of loan approval. Expenditures accrue and will be charged against the proposed limitation as cash advances are made under the loan agreement.

*Size of limitation.*—The limitation of $37,400,000 proposed for the fiscal year 1961 includes $34 million representing work expected to be performed in 1961, including construction work actually completed, regardless of when the obligations for that work were incurred. This amount represents an increase in the rate of installation of measures above that of prior years.

The limitation of $37,400,000 has been estimated on the basis that:

(*a*) Work performed during 1961 on projects underway for which obligations were incurred in 1960 and prior years will result in accrued expenditures of about $18,500,000, and that work to be performed on projects initiated in fiscal year 1961 will result in accrued expenditures of about $15,500,000, or a total of $34 million for fiscal year 1961.

In previous fiscal years there has been a considerable lag in time between the signing of the project agreement which obligates funds and the letting of the construction contract for installation of works of improvement. A change in procedure has recently been initiated to provide that a contract for the work must be advertised within 30 days and contracts signed within 90 days after the project agreement has been signed. It is expected that this will tend to shorten the timelag between the incurring of obligations and the accrual of expenditures. There were more than $20 million in unliquidated obligations as of June 30, 1959, which will become accrued expenditures in the 1960 and subsequent fiscal years as work on the watershed projects is installed.

(b) $3,400,000, an amount equal to 10 percent of the above estimated accrued expenditure of $34 million, is necessary to allow for the uncertainties in forecasting contractor's performance in completion of scheduled work in 1961. This margin is needed at least until more operating experience with the limitation has been gained, and it can be forecast more precisely what the annual accrued expenditure limitation requirements will be. There are only certain seasons of the year when much of the planned works of improvement on watersheds can be installed. Many factors beyond the control of the Federal Government or the local cooperating group can cause delay in installing measures, such as bad weather, loss of or unavoidable delay in recruiting personnel, delay in award of contracts, unavailability of materials, etc. Thus any work planned for installation near the end of a fiscal year which is delayed would necessarily have to be charged to the limitation for the succeeding year. This might result in an equivalent delay of other installation work planned for that year because of the necessity for staying within the limitation. Provision of the 10 percent safety factor requested in the 1961 accrued expenditure limitation will help avoid unnecessary delay of planned work.

STATUS OF PROGRAM

*Current activities.*—The Watershed Protection and Flood Prevention Act (Public Law 566, 83d Congress), as amended (16 U.S.C. 1001–1008), provides for cooperation between the Federal Government and the States and their political subdivisions in a program to prevent erosion, floodwater, and sediment damages in the watersheds of rivers and streams and to further the conservation, development, utilization, and disposal of water. The work of the Department under this item consists of the following:

(1) Investigations and surveys of proposed small watershed projects upon application by local sponsoring organizations and collaboration with them in the preparation of project work plans. These plans outline the proposed works of improvement to be installed and include the estimated costs, a cost-benefit analysis, cost-sharing and maintenance arrangements, a proposed schedule of operations, and other facts needed to determine whether Federal participation in the cooperative project should be approved.

(2) Participation in the installation of works of improvement in approved watershed projects: Detailed construction plans and specifications are prepared for specific flood prevention and water management features of the project. The Federal Government bears all of the construction cost of the flood prevention and related features except easements and rights-of-way, water rights, and administration of contracts, and pays for an equitable part of the cost of installation of the agricultural water management and fish and wildlife development features. Local organizations must pay all costs of works of improvement for purposes other than these. Funds are provided to local organizations for the Federal share of the cost of contracts they award for installation

of authorized works of improvement on other than Federal lands. The Federal agencies do this work on Federal lands which they administer with appropriate contributions being made by the local people who receive benefits. Engineering assistance is provided for flood prevention, fish and wildlife, and agricultural water management construction work, either directly by the Federal Government or by advancement of funds to local organizations for employment of engineers. Technical assistance is provided to accelerate the planning and application of land treatment measures in the watersheds to prevent erosion and protect the structural works of improvement from flood and sediment damage. Financial assistance at the same rate as provided under other programs of the Department is also provided for land treatment measures installed primarily for flood prevention.

(3) Installation on a cost-sharing basis, of improvement measures on 30 currently active pilot watersheds which were initially authorized by the Congress to serve as demonstrations of the effectiveness of complete watershed treatment in preventing erosion and reducing floodwater and sediment damage.

(4) Program evaluation studies in selected watershed protection projects to determine the effectiveness of structural and land treatment measures installed.

(5) Surveys and investigations of the watersheds of rivers and other waterways in cooperation with other Federal, State, and local agencies, as the basis for the development of coordinated interagency water resources programs.

(6) The making of loans to local organizations to finance the local share of the costs of carrying out works of improvement for flood prevention and for the conservation, development, utilization, and disposal of water.

PROGRAM ASSIGNMENTS

The Soil Conservation Service has general responsibility for administration of the work of the Department authorized under the Watershed Protection and Flood Prevention Act and for the formulation of guiding principles and procedures. It assists local organizations with (*a*) the development of watershed work plans, and (*b*) the application of land treatment measures and the installation of structural works of improvement on non-Federal land in authorized watersheds. Some works are also installed on Federal lands by arrangement with the administering agency. It also makes surveys and investigations of the watersheds of rivers and waterways and cooperates with other agencies in the planning, development, and coordination of works and programs.

The Forest Service participates in the development of watershed work plans and in the installation of watershed improvement measures. It concerns itself with (*a*) all national forest and other lands in the authorized watersheds that are administered by the Forest Service, and (*b*) certain specialized technical assistance on other forest lands in the watersheds. It also provides specialized assistance in forestry aspects of coordinated river basin programs.

The Bureau of Land Management and the Bureau of Indian Affairs of the Department of the Interior participate in the planning and installation of works of improvement on lands under their jurisdiction. The Agricultural Research Service assists with the development of criteria to be used in the economic evaluation of work plans and measures installed in small watershed projects. It also makes special economic analyses of specific watershed projects and of river basin resource development proposals. The Farmers Home Administration has responsibility for administration of section 8 of the act relating to loans to local organizations.

Funds are made available from this appropriation to the U.S. Weather Bureau and the U.S. Geological Survey, either by transfer or reimbursement, for precipitation and runoff data needed in watershed program evaluation, planning, and design work.

(The following are selected examples of recent progress:)

INVESTIGATIONS AND PLANNING

*Agency participation*

Allocations of funds to the cooperating agencies for 1959 and 1960 and proposed for 1961 for investigations and planning watershed protection projects are as follows:

| Agency | 1959 Obligations | 1960 Estimate | 1961 Estimate |
|---|---|---|---|
| Soil Conservation Service | [1] $4,278,935 | $4,502,400 | $3,237,200 |
| Forest Service | 341,685 | 365,000 | 236,800 |
| Agricultural Research Service | 29,651 | 24,600 | 20,000 |
| U.S. Geological Survey | 13,339 | 8,000 | 6,000 |
| Total | 4,663,610 | 4,900,000 | 3,500,000 |

[1] Includes approximately $30,000 for reimbursable work performed by the U.S. Weather Bureau.

*Development of watershed work plans*

As of November 1, 1959, watershed planning assistance had been authorized to be given in 47 States and in Puerto Rico. No applications for watershed planning assistance have been received from Alaska, Maine, or Rhode Island.

During the 1959 fiscal year 261 new applications for watershed project assistance were received by the Soil Conservation Service from local sponsors. A total of 1,148 applications had been received as of June 30, 1959. These applications covered 82,610,300 acres of watershed lands in 47 States and Puerto Rico. The Administrator, SCS, approved 82 additional applications for work plan development during the 1959 fiscal year. As of June 30, 1959, a total of 446 applications covering 32,013,300 acres of watershed lands had been approved for work plan development. A total of 246 watershed work plans had been developed by the end of the fiscal year 1959.

No watershed planning action had been taken by June 30, 1959, on 702 of the applications for assistance received from local organizations. It is estimated that only about 387 of the watersheds covered by these applications will be determined as suitable for the development of plans under Public Law 566 and that 315 will not qualify for assistance. It is not possible to provide watershed planning assistance immediately to all local organizations submitting applications. The local people in Arkansas, California, Connecticut, Kentucky, Louisiana, Oklahoma, Oregon, Texas, and Virginia furnished funds and technical services estimated to amount to $1,374,466 through the fiscal year 1959 to supplement the watershed planning being done by the Department under this item. It is estimated that these same States together with initial contributions from Colorado, Iowa, Nebraska, Tennessee, and Utah will provide watershed planning assistance amounting to more than $1,040,000 in the fiscal year 1960. No commitments are made that Federal allotments of funds for the installation of works of improvement will be increased in these States because of the additional watershed work plans prepared with the non-Federal funds and services which they provide.

The following table shows the status as of June 30, 1959, of watersheds with respect to project applications, planning, and operations under authority of Public Law 566, and estimates for 1960 and 1961:

| Activity | Fiscal year | | | | | |
|---|---|---|---|---|---|---|
| | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 |
| APPLICATIONS | | | | | | |
| Received: | | | | | | |
| Current year | 194 | 165 | 175 | 261 | 275 | 300 |
| Cumulative at end of year | 547 | 712 | 887 | 1,148 | 1,423 | 1,723 |
| Not suitable for planning—cumulative at end of year | 260 | 280 | 300 | 315 | 330 | 345 |
| PLANNING | | | | | | |
| Authorized: | | | | | | |
| Current year | 172 | 96 | 96 | 82 | 100 | 70 |
| Cumulative | 172 | 268 | 364 | 446 | 546 | 616 |
| Suspended or terminated—cumulative | (10) | (39) | (71) | (67) | (70) | (80) |
| Planning in process at end of year | 149 | 187 | 193 | 199 | 196 | 140 |
| Remaining to be planned at end of year | 115 | 164 | 223 | 387 | 547 | 762 |
| OPERATIONS | | | | | | |
| Authorized: | | | | | | |
| Current year | 13 | 29 | 58 | 80 | 80 | 50 |
| Cumulative | 13 | 42 | 100 | 180 | 260 | 310 |
| Completed: | | | | | | |
| Current year | | | 2 | 3 | 5 | 15 |
| Cumulative | | | 2 | 5 | 10 | 25 |
| In process at end of year | | | 98 | 175 | 250 | 285 |

*Fish and wildlife improvements included in watershed work plans*

The Watershed Protection and Flood Prevention Act, as amended by Public Law 85–624 and Public Law 85–865, provides for giving consideration to the conservation and development of wildlife resources in watershed projects. Where determined feasible as a part of the conservation, development, utilization, and disposal of water in a watershed project, the Secretary of Agriculture may provide in the approved watershed work plan for cost-sharing assistance to be furnished to local organizations for fish and wildlife development. Policies and procedures for carrying out the provisions of the amendments to Public Law 566 cited above have been formulated and placed in effect. Provision is made for the fullest cooperation with the Fish and Wildlife Service and State fish and game agencies. Most of the benefits derived from fish and wildlife development stem primarily from the enjoyment of sport fishing and hunting. There are no wholly satisfactory criteria for translating such benefits into monetary values. It has been recognized in many previous legislative enactments, however, that such benefits justify participation by both State and Federal Governments in improvements to enhance the opportunities for harvesting fish and wildlife in the "pursuit of happiness." Because of the long history of Federal and State participation in such developments, the Secretary has determined that where State and local organizations contribute at least 50 percent of the installation cost of such developments, as part of a watershed project, the benefits shall be considered, for the purpose of project justification, to equal the costs thereof.

Fish and game agencies are showing considerable interest in this phase of watershed project development and are indicating their intention to finance the local share of the costs for fish and wildlife development. It is anticipated that this interest will result in a significant number of watershed projects with fish and wildlife features as an integral part of the watershed plan. It is also anticipated that a number of requests will be received to modify plans already approved to incorporate these features.

*Improved procedures lessen cost of hydrologic computations*

A program with appropriate operating instructions for use of electronic digital computers for calculating water-surface profiles in natural and constructed channels has been developed by Soil Conservation Service engineers and made available to all Service operating units and also to private computing and engineering firms. This procedure is used for developing information on waterstage relationships which is needed for project evaluation purposes. It is also used later in the design of flood channels and flood control structures. Savings in

total engineering time required for such work amount to about one-third over methods previously in use. Field surveys of channel cross-sections and the plotting of these take an average of about 60 percent of the cost required for the total job of computing water surface profiles where the computing of channel parameters and the water surface profile is done by the best available manual methods. Thus, under these conditions, about 40 percent of the total cost is actually spent on calculation. Use of the electronic computer reduces the computation costs to about one-sixth of the manual costs. Thus, the total job is reduced in cost by about one-third. The computer program is now being further developed to automatically include the effects of culverts and bridges on the water-surface profiles which will further improve efficiency of operations.

INSTALLATION OF WORKS OF IMPROVEMENT

*Agency participation*

Allocation of funds to the cooperating agencies of the Department of Agriculture and the Department of Interior for 1959 and 1960 and proposed for 1961 for works of improvement on watershed protection projects are as follows:

| Agency | 1959 obligations | 1960 estimate | 1961 estimate |
|---|---|---|---|
| Soil Conservation Service: | | | |
| Pilot watersheds | $5,464,095 | $5,164,800 | $2,446,800 |
| Public Law 566 watersheds [1] | 20,878,064 | 16,986,336 | 21,050,100 |
| Forest Service: | | | |
| Pilot watersheds | 75,577 | 47,000 | 13,200 |
| Public Law 566 watersheds | 224,425 | 625,000 | 725,000 |
| Agricultural Research Service: | | | |
| Pilot watersheds | 38,395 | 38,200 | 40,000 |
| Public Law 566 watersheds | 27,173 | 51,415 | 51,000 |
| Bureau of Land Management: Public Law 566 watersheds | 8,311 | 35,175 | 2,800 |
| Bureau of Indian Affairs: Public Law 566 watersheds | 6,492 | 11,307 | 9,100 |
| U.S. Geological Survey: Public Law 566 watersheds | 69,251 | 67,731 | 62,000 |
| Total | 26,791,783 | 23,026,964 | 24,400,000 |

[1] Includes approximately $50,000 in 1959 and $80,000 in 1960 and 1961 for reimbursable work performed by the U.S. Weather Bureau.

*Status of pilot demonstration watersheds*

The following table shows the status of the active pilot watersheds which were initiated in 1954 to demonstrate and evaluate the effects of works of improvement installed in small watersheds for watershed protection and flood prevention:

[Dollars in thousands]

| Explanation | 1959 actual | | 1960 estimate | | 1961 estimate | |
|---|---|---|---|---|---|---|
| | Number | Amount | Number | Amount | Number | Amount |
| Active projects at beginning of year and estimated completion cost | 39 | $15,224 | 30 | $9,646 | 15 | $4,396 |
| Deduct amounts obligated during the year for: | | | | | | |
| (a) Projects completed during the year | 9 | 96 | 15 | 1,665 | 11 | 1,387 |
| (b) Other projects | | 5,482 | | 3,585 | | 1,113 |
| Subtotal | 9 | 5,578 | 15 | 5,250 | 11 | 2,500 |
| Total projects in progress at end of year and estimated completion cost | 30 | 9,646 | 15 | 4,396 | 4 | 1,896 |

Originally 62 pilot watershed projects were started in the fiscal year 1954 in cooperation with local sponsors. Seven of these were subsequently deauthorized and another discontinued at the sponsor's request prior to June 30, 1958. This left 54 projects to be completed. The installation of works of improvement was completed on the White Tanks project in Arizona in the fiscal year 1955 and on an additional 14 projects in the fiscal year 1958. Seven other projects were scheduled for completion in 1958 and were reported in error last year as completed as of June 30, 1958. However, mainly due to

drought or excess moisture conditions, it was necessary to continue the installation of land treatment and some structural measures on 6 of these projects into the fiscal year 1959 and into the fiscal year 1960 on the other project.

One of these is the North Fork of Rough River watershed in Kentucky which was previously reported to have been completed on June 30, 1958. However, it was necessary to continue operations on this watershed in the fiscal years 1959 and 1960 to complete a floodwater retarding dam on which construction was begun in the fall of 1957. Due to excess moisture the contractor was unable to complete the work in the fiscal year 1953 as scheduled. It is estimated that project installations will be completed on 15 pilot watersheds in the 1960 fiscal year.

The installation of works of improvement was completed in 9 of the pilot watersheds during the fiscal year 1959, as follows:

Double Creek, Okla.[1]
East Fork of Falling River, Va.[1]
East Willow Creek, Minn.
Floyd River Tribs, Iowa
Green Creek, Tex.[1]
Old Tom Creek, Ill.[1]
Plum Creek, Ky.[1]
Salem Fork of Ten Mile Creek, W. Va.
Upper Green River, Ky.[1]

An aditional 11 pilot watersheds are scheduled to be completed in 1961. This would leave only 4 pilot watersheds remaining to be completed after the end of the fiscal year 1961. The Walnut Creek and Calleguas Creek projects in California are presently scheduled for completion in the fiscal year 1966. Unavailability of tax revenues to the sponsoring local organizations has held up completion of work on these two projects. Due to changes in the work schedules desired by the local people it has been necessary to reschedule completion of the Twelve Mile Creek project in South Carolina, and Switzler Creek project in Kansas to the fiscal year 1963.

*Evaluation studies on pilot watersheds*

As of June 30, 1959, some project evaluation studies had been carried out in all of the pilot watershed projects except the seven which had been deauthorized. These studies were terminated in 18 projects in or prior to the fiscal year 1959 and are estimated to be completed in 24 additional projects by the end of the fiscal year 1961. It is planned to extend the period of the evaluation studies in approximately 13 pilot projects through the fiscal year 1965. These projects are:

Brownell Creek, Nebr.
Double Creek, Okla.
Escondido Creek, Tex.
Kiowa Creek, Iowa
Mule Creek, Iowa
North Fork of Broad River, Ga.
Plum Creek, Ky.
Salem Fork of Ten Mile Creek, W. Va.
Six Mile Creek, Ark.
Third Creek, N.C.
Twelve Mile Creek, S.C.
Upper Hocking River, Ohio
Upper Hondo Tribs., N. Mex.

The information already obtained from the evaluation studies of the pilot projects has been very useful in planning other watershed projects and in the preparation of detailed designs for structural measures. The extension of the evaluation studies in about 13 projects will greatly increase the amount of useful information available for planning and designing future watershed projects.

*Status of Public Law 566 watersheds*

After local sponsoring organizations have developed watershed work plans with the Department's assistance and the projects have been approved as suitable for Federal participation, technical services and cost-sharing assistance are provided for specified works of improvement. The initiation of installation of works of improvement in new projects requires administrative approval in two stages: (1) approval for advance engineering and other technical assistance only, and (2) approval for construction of structural measures. The advance engineering and technical assistance stage includes surveys, investigations, and preparation of detailed designs, specifications, and engineering cost estimates for construction of structural works, as well as technical and other assistance for planning and applying land treatment measures. The project-construction stage begins with the execution of the first project agreement for construction of works of improvement, which obligates the Government to furnish its share of the construction cost.

[1] Previously reported in error as completed in fiscal year 1958.

During the fiscal year 1959, 80 projects were approved for advanced engineering and other technical assistance and 60 projects were approved for construction of structural measures. This brought the total projects approved for Federal assistance in the installation of works of improvement to 180 as of June 30, 1959. Of this number, 107 had been approved for construction of structural measures. Since project installations were completed in the fiscal year 1958 in two projects and in three more projects in the fiscal year 1959, this left a total of 175 projects in progress with 102 of these in the construction stage as of June 30, 1959.

The following table shows the status of Public Law 566 projects with respect to approvals for advance technical assistance and construction:

[Dollars in thousands]

| Explanation | 1959 actual | | 1960 estimate | | 1961 estimate | |
|---|---|---|---|---|---|---|
| | Number | Amount | Number | Amount | Number | Amount |
| Projects approved for advance engineering and technical assistance (number and estimated cost of completion, unless otherwise indicated): | | | | | | |
| Projects underway at beginning of year | 53 | $29,925 | 73 | $50,840 | 118 | $92,940 |
| Projects initiated during the year | 80 | 71,572 | 80 | 78,000 | 50 | 50,000 |
| Subtotal | 133 | 101,497 | 153 | 128,840 | 168 | 142,940 |
| Deduct projects approved for construction during the year | 60 | 47,977 | 35 | 30,900 | 32 | 28,900 |
| Net projects approved | 73 | 53,520 | 118 | 97,940 | 136 | 114,040 |
| Deduct amounts obligated during the year for advance engineering and technical assistance | | 2,680 | | 5,000 | | 5,635 |
| Total, projects receiving only advance engineering and technical assistance at end of year | 73 | 50,840 | 118 | 92,940 | 136 | 108,405 |
| Projects approved for construction (number and estimated cost of completion unless otherwise indicated): | | | | | | |
| Projects underway at beginning of year | 45 | 12,906 | 102 | 42,349 | 132 | 60,472 |
| Projects initiated during the year | 60 | 47,977 | 35 | 30,900 | 32 | 28,900 |
| Total projects under construction during the year | 105 | 60,883 | 137 | 73,249 | 164 | 89,372 |
| Deduct amounts obligated during the year for works of improvement on: | | | | | | |
| (a) Projects approved for construction during the year | | 12,429 | | 5,300 | | 5,000 |
| (b) Projects completed during the year | 3 | 73 | 5 | 62 | 15 | 450 |
| (c) Continuing prior year projects | | 6,032 | | 7,415 | | 10,815 |
| Total projects under construction at end of year | 102 | 42,349 | 132 | 60,472 | 149 | 73,107 |
| Grand total: Projects in progress at end of year | 175 | 93,189 | 250 | 153,412 | 285 | 181,512 |
| Projects completed (cumulative) | (5) | | (10) | | (25) | |

## FUNDS FOR PLANNING

Mr. WHITTEN: I notice you have a $5 million increase in watershed protection, but from listening to your testimony, in order to go ahead with this work, you have scaled down funds for planning, so far as the budget is concerned. I believe you say you cut out approximately $1.4 million in planning money for next year, as against this year. Is that approximately right?

Mr. WILLIAMS. That's correct.

Mr. WHITTEN. What would it take to carry your planning for the next fiscal year at the same level as this year? How much would you have to have above the budget?

Mr. WILLIAMS. The level is $4.9 million Federal funds. It will be an increase of $1.4 million above the budget, to bring it to that figure.

Mr. WHITTEN. Do you have to have the funds in sight to start a plan, to initiate your planning? Can you do that with a little bit of money in the hopes of getting the remainder, or do you operate on the basis that you wouldn't start such a plan or survey without any funds in sight to complete it?

Mr. WILLIAMS. Well, Mr. Chairman, in each watershed area, the planning work is programed out with the local organization. Assuming that a certain size party or certain facility is available, and the length of time it will take to plan that, is dependent on a number of factors, one of which is the input that we put into it. Another is the readiness of the local people to proceed, the activities of the local sponsoring organization, and things of that kind.

I might ask Hollis if he would add something to that.

Mr. H. WILLIAMS. The time required for planning a watershed averages about 1 year, Mr. Chairman.

Mr. WHITTEN. The point I was making is that you wouldn't have a planning party unless you had money in sight for that planning party to operate the full year.

So, if you cut out this $1.4 million, it would not let you start the same number of planning parties on a smaller scale. What you do would be to restrict the number of planning parties that you would have.

From the time you initiate the planning, and you say it takes about a year to work all that detail out, once you get to that point, do you have the still further delay in working it out with the local people? You frequently find they have to go through State procedures, or court procedures, so as to provide their part of the money. Is there still other delay that drags this out further?

I am trying to find the time lag between the time you initially start out, and where you eventually start construction.

Mr. WILLIAMS. I would like to ask Hollis.

Mr. H. WILLIAMS. Mr. Chairman, that lag between project authorization and construction is about 1 year, also.

Mr. WHITTEN. About a year, you say?

Mr. H. WILLIAMS. Yes.

Mr. WHITTEN. So, if we were to slow this planning down, we would be slowing down the plan that we left out by 1 year. Then there would be an additional year, once you started them to planning, that would be required for them to catch up with the time to construct.

Mr. WILLIAMS. That's right.

Mr. WHITTEN. I notice you have a number of river basin surveys, where you are cooperating with various States. I was called this morning to be advised by one of my colleagues in the Senate that a survey had just been approved or accepted in connection with the Yazoo River Basin. Once you get together on that kind of survey, what does that lead to? Is that the beginning of plans, specific plans for work?

Mr. WILLIAMS. Mr. Chairman, what that amounts to in general is a projected long-term plan for the river basin as a whole for the land and water resource development, based upon the anticipated needs of the people that reside there, and are expected to make use of those facilities.

In other words, it is a long-stage programing, rather than the specific project authorization.

Mr. WHITTEN. At any time you get into that kind of a project, do you delay any specific or small projects until you eventually complete the other, so that what you do will fit the overall plan? In other words, have you made some smaller projects wait until you had the master plan to which it must conform? I was told there were at least three that had been held up in that general area.

Mr. WILLIAMS. I am aware of that, but I would like to ask Mr. Brown if he could enlighten us?

Mr. BROWN. Mr. Chairman, in this river basin survey of the Yazoo Delta area, it would not be possible to plan the small Public Law 566 projects without having the master plan in advance. The master plan shows what the layout of the major drainage outlets should be, and having that it then becomes possible to plan individual segments of the basin as Public Law 566 projects.

Mr. WHITTEN. So, when I say held up, I guess I was correct, but I might have given the wrong impression. In other words, you have had to wait until this is completed before you initiate the other?

Mr. BROWN. That's correct.

Mr. WHITTEN. That would be true of these various other river basins in which you cooperate with other agencies in working out a plan?

Mr. BROWN. Yes, sir.

## FLOOD PREVENTION

*Program and financing*

| | 1959 actual | 1960 estimate | 1961 estimate |
|---|---|---|---|
| Program by activities: | | | |
| 1. Works of improvement (total program costs [1]) | $15,415,385 | $20,975,987 | $15,800,000 |
| 2. Relation of costs to obligations: | | | |
| Costs financed from obligations of other years (unpaid undelivered orders), net (−) | | −129,995 | −800,000 |
| Obligations incurred for costs of other years (unpaid undelivered orders), net | 1,114,985 | | |
| Total program (obligations) | 16,530,370 | 20,845,992 | 15,000,000 |
| Financing: | | | |
| Unobligated balances brought forward | −1,376,362 | −2,845,992 | |
| Unobligated balance carried forward | 2,845,992 | | |
| Appropriation (new obligational authority) | 18,000,000 | 18,000,000 | 15,000,000 |

[1] Includes capital outlay as follows: June 30, 1959, $1,022,549; 1960, $850,000; 1961, $400,000.

*Object classification*

| | 1959 actual | 1960 estimate | 1961 estimate |
|---|---|---|---|
| SOIL CONSERVATION SERVICE | | | |
| Total number of permanent positions | 841 | 902 | 881 |
| Full-time equivalent of all other positions | 173 | 189 | 165 |
| Average number of all employees | 904 | 987 | 877 |
| Number of employees at end of year | 1,103 | 1,189 | 1,133 |
| Average GS grade and salary | 6.7 $5,491 | 6.9 $5,520 | 6.9 $5,556 |
| 01 Personal services: | | | |
| Permanent positions | $3,845,146 | $4,233,460 | $3,802,000 |
| Positions other than permanent | 573,975 | 648,540 | 551,000 |
| Other personal services | 86,417 | 140,000 | 80,000 |
| Total personal services | 4,505,538 | 5,022,000 | 4,433,000 |
| 02 Travel | 190,159 | 235,000 | 185,000 |
| 03 Transportation of things | 22,024 | 33,000 | 20,000 |
| 04 Communication services | 59,773 | 68,000 | 60,000 |
| 05 Rents and utility services | 99,793 | 105,000 | 100,000 |
| 06 Printing and reproduction | 47,941 | 65,000 | 50,000 |
| 07 Other contractual services | 8,036,397 | 11,493,069 | 7,064,500 |
| Services performed by other agencies | 47,453 | 165,000 | 95,000 |
| 08 Supplies and materials | 511,484 | 510,000 | 505,000 |
| 09 Equipment | 234,726 | 199,000 | 185,000 |
| 11 Grants, subsidies, and contributions | 534,539 | 650,000 | 550,000 |
| 13 Refunds, awards, and indemnities | 4,334 | 5,000 | 5,000 |
| 15 Taxes and assessments | 12,468 | 15,000 | 12,500 |
| Total, Soil Conservation Service | 14,306,629 | 18,565,069 | 13,265,000 |
| ALLOTMENT TO FOREST SERVICE | | | |
| Total number of permanent positions | 144 | 144 | 144 |
| Full-time equivalent of all other positions | 184 | 191 | 125 |
| Average number of all employees | 314 | 314 | 248 |
| Number of employees at end of year | 201 | 219 | 219 |
| Average GS Grade and salary | 6.8 $5,583 | 6.9 $5,617 | 6.9 $5,614 |
| Average salary of ungraded positions | $4,553 | $4,754 | $4,754 |
| 01 Personal services: | | | |
| Permanent positions | $636,488 | $615,431 | $615,431 |
| Positions other than permanent | 522,748 | 543,996 | 361,800 |
| Other personal services | 25,599 | 25,949 | 16,569 |
| Total personal services | 1,184,835 | 1,185,376 | 993,800 |
| 02 Travel | 27,909 | 32,785 | 22,000 |
| 03 Transportation of things | 3,519 | 10,000 | 7,000 |
| 04 Communication services | 13,322 | 12,000 | 8,000 |
| 05 Rents and utility services | 20,666 | 19,970 | 13,000 |
| 06 Printing and reproduction | 89 | 25 | 100 |
| 07 Other contractual services | 144,105 | 205,207 | 136,000 |
| Services performed by other agencies | 377,408 | 386,631 | 255,000 |
| 08 Supplies and materials | 252,042 | 264,545 | 174,100 |
| 09 Equipment | 36,118 | 37,000 | 27,000 |
| 10 Lands and structures | 86,519 | 75,500 | 50,000 |
| 11 Grants, subsidies, and contributions | 94,974 | 73,081 | 73,000 |
| 13 Refunds, awards, and indemnities | 4,058 | 3,200 | 2,000 |
| 15 Taxes and assessments | 13,213 | 13,603 | 9,000 |
| Subtotal | 2,258,777 | 2,318,923 | 1,770,000 |
| Deduct quarters and subsistence charges | 35,036 | 38,000 | 35,000 |
| Total, Forest Service | 2,223,741 | 2,280,923 | 1,735,000 |
| Total obligations | 16,530,370 | 20,845,992 | 15,000,000 |

*Flood prevention*

Mr. WHITTEN. Now turning to flood prevention, we shall insert the justifications in the record at this point.

(The justifications follow:)

| | |
|---|---|
| Appropriation act, 1960, and base for 1961 | $18,000,000 |
| Budget estimate, 1961 | 15,000,000 |
| Decrease (in appropriation for works of improvement in authorized flood prevention watersheds) | −3,000,000 |

| Project | 1959 | 1960 (estimated) | Decrease | 1961 (estimated) |
|---|---|---|---|---|
| Works of improvement [1] | $16,530,370 | [2] $18,000,000 | −$3,000,000 | $15,000,000 |
| Total employee health benefit costs (Public Law 86-382) | [ ] | [ ] | [ ] | [46,000] |
| Subtotal | 16,530,370 | 18,000,000 | −3,000,000 | 15,000,000 |
| 1958 appropriation available in 1959 | −1,376,362 | | | |
| 1959 appropriation available in 1960 | +2,845,992 | | | |
| Total appropriation or estimate | 18,000,000 | | | |

[1] Represents obligations. Applied costs for 1959 are $15,415,385, and are estimated to be $20,975,897 in 1960 and $15,800,000 in 1961. The $1,114,985 excess of obligations over costs in 1959 reflects, primarily, the timing of installation of structural measures in the several watersheds in future years, for which obligations were incurred in 1959. In 1960, annual installation costs are expected to exceed annual obligations by $129,995, and in 1961 by $800,000.

[2] In addition it is estimated that the $2,845,992 available from prior year balances will be obligated.

DECREASE

(1) ***A decrease of $3,000,000 in the appropriation for works of improvement in the authorized flood prevention projects.***—**The appropriation requested in 1961 is the same amount proposed in the 1960 budget estimate and is adequate to enable the Department to continue its total conservation efforts at a comparatively high level. It will permit the work of installing watershed improvement measures to go forward at substantial rates in each of the eleven authorized watersheds, as shown on the attached table.**

*Distribution of funds to watersheds*

| Watershed | 1959 obligations | Total availability, 1960 | | | 1961 budget estimate |
|---|---|---|---|---|---|
| | | Total available | Balance carried forward from 1959 | 1960 appropriation | |
| Buffalo Creek, N.Y. | $353,152 | $362,583 | $31,583 | $331,000 | $276,000 |
| Colorado (middle), Tex. | 1,055,213 | 2,959,362 | 988,362 | 1,971,000 | 1,626,000 |
| Coosa, Ga., Tenn. | 764,071 | 823,817 | 47,817 | 776,000 | 640,000 |
| Little Sioux, Iowa, Minn. | 1,005,480 | 954,943 | 55,943 | 899,000 | 741,000 |
| Little Tallahatchie, Miss. | 786,511 | 1,226,135 | 300,135 | 926,000 | 765,000 |
| Los Angeles, Calif. | 1,320,471 | 1,596,503 | 231,503 | 1,365,000 | 1,084,000 |
| Potomac, Pa., Md., Va., W. Va. | 992,217 | 1,120,539 | 217,539 | 903,000 | 745,000 |
| Santa Ynez, Calif. | 205,179 | 465,571 | 210,571 | 255,000 | 342,000 |
| Trinity, Tex. | 3,538,062 | 3,774,946 | 152,946 | 3,622,000 | 2,987,000 |
| Washita, Okla. | 4,291,335 | 4,347,527 | 12,527 | 4,335,000 | 3,579,000 |
| Yazoo, Miss. | 2,089,109 | 2,914,066 | 597,066 | 2,317,000 | 1,915,000 |
| Emergency measures | 129,570 | 300,000 | | 300,000 | 300,000 |
| Total | 16,530,370 | 20,845,992 | 2,845,992 | 18,000,000 | 15,000,000 |

STATUS OF PROGRAM

*Current activities.*—The Flood Control Acts, as amended and supplemented (33 U.S.C. 701–709), provide (1) for control of floods by mainstream control works for which the Department of the Army is responsible, and (2) for the reduction of floodwater, sediment, and erosion damages, and the prevention of floods by installation of watershed improvement measures for which the Department of Agriculture is responsible. The work of this Department under this item, which is carried on in the 11 watersheds authorized by the Flood Control Act of December 22, 1944, consists of:

(*a*) the preparation of detailed subwatershed or subwatershed area work plans which specify the kind of improvements to be installed for flood prevention, their location, and the work schedule,

(*b*) the installation of works of improvement, such as diversions, dikes, gully stabilizing and water retarding structures, debris and desilting basins, floodways, stream-channel improvement, fire protection and woodland improvement measures, etc., to reduce flood, erosion, and sediment damage and retard runoff and control its movement into the main streams, and

(*c*) the acceleration of land treatment measures to prevent erosion and protect the structural works of improvement from flood and sediment damage.

Proposed improvements by the Department are correlated with and designed to protect mainstream work by the Corps of Engineers, the Bureau of Reclamation, and others, in addition to providing protection to the watershed lands and property above the mainstream works. The proper and continued maintenance of installed measures is the key to the long-time effectiveness of the watershed improvement programs. Landowners and operators generally maintain conservation and other measures which benefit primarily the lands upon which they are installed. Local units of government have the responsibility to maintain the measures which provide primarily off-site benefits.

*Program assignments*

The Soil Conservation Service has general responsibility for administration of the work of the Department of Agriculture authorized under the flood control acts. The Soil Conservation Service and the Forest Service carry out the planning and installation of flood prevention works of improvement and land treatment measures in the authorized watersheds. The Forest Service activities are concerned with (*a*) all national forests and other lands in the authorized watershed that are administered by that Service, (*b*) all range land in or adjacent to national forest and used in conjunction with such forests under formal agreement with the landowner, and (*c*) certain specialized technical assistance on other forest lands within the watersheds. The Soil Conservation Service activities are concerned with all other private and public lands in the watersheds.

SELECTED EXAMPLES OF RECENT PROGRESS

*Allocation of funds for works of improvement*

Funds available for planning and installation of flood prevention works of improvement are allocated between the Soil Conservation Service and the Forest Service as follows:

| Agency | 1959 obligations | 1960 funds available | 1961 estimate |
|---|---|---|---|
| Soil Conservation Service | $14,306,629 | $18,358,469 | $12,665,000 |
| Forest Service | 2,094,171 | 2,187,523 | 1,735,000 |
| Emergency measures | 129,570 | 300,000 | 300,000 |
| Total | 16,530,370 | [1] 20,845,992 | 15,000,000 |

[1] Includes $2,845,992 unobligated balances brought forward from fiscal year 1959.

**The following table provides a breakdown by watersheds of the allocations for the fiscal years 1960 and 1961.**

| Watershed | 1960 funds available agency distribution | | | 1961 budget estimate agency distribution | | |
|---|---|---|---|---|---|---|
| | Soil Conservation Service | Forest Service | Total | Soil Conservation Service | Forest Service | Total |
| 1. Buffalo Creek, N.Y. | $358,783 | $3,800 | $362,583 | $273,000 | $3,000 | $276,000 |
| 2. Colorado (middle) Texas | 2,959,362 | | 2,959,362 | 1,626,000 | | 1,626,000 |
| 3. Coosa, Ga., Tenn. | 774,782 | 49,035 | 823,817 | 614,000 | 26,000 | 640,000 |
| 4. Little Sioux, Iowa, Minn. | 954,943 | | 954,943 | 741,000 | | 741,000 |
| 5. Little Tallahatchie, Miss. | 978,817 | 247,317 | 1,226,134 | 565,000 | 200,000 | 765,000 |
| 6. Los Angeles, Calif. | 609,163 | 987,340 | 1,596,503 | 300,000 | 784,000 | 1,084,000 |
| 7. Potomac, Md., Va., Pa., W. Va. | 1,076,555 | 43,984 | 1,120,539 | 711,000 | 34,000 | 745,000 |
| 8. Santa Ynez, Calif. | 272,600 | 192,972 | 465,572 | 205,000 | 137,000 | 342,000 |
| 9. Trinity, Tex. | 3,774,946 | | 3,774,946 | 2,987,000 | | 2,987,000 |
| 10. Washita, Okla. | 4,345,027 | 2,500 | 4,347,527 | 3,576,000 | 3,000 | 3,579,000 |
| 11. Yazoo, Miss. | 2,253,491 | 660,575 | 2,914,066 | 1,367,000 | 548,000 | 1,915,000 |
| 12. Emergencies [1] | 300,000 | | 300,000 | 300,000 | | 300,000 |
| Total | 18,658,469 | 2,187,523 | 20,845,992 | 13,265,000 | 1,735,000 | 15,000,000 |

[1] Under authority of sec. 216 of the Flood Control Act of 1950, not to exceed $300,000 may be expended each fiscal year for emergency measures when a fire, flood or any other natural element or force has caused a sudden impairment of the watershed. This amount is not included in the amounts proposed for distribution to the individual watersheds. However, any balances not needed for emergency measures as provided by the act are distributed later in the year to those of the 11 authorized watersheds where the greatest need exists and where the local people have provided easements and rights-of-way to permit installation of additional works of improvement.

*Watershed work plans and improvement measures*

The Department, in cooperation with soil conservation districts, watershed organizations, and other local, private, and public agencies, is planning and installing watershed improvement measures in all 11 of the authorized watersheds. In order to provide consistency between the flood prevention program and the watershed protection program (Public Law 566, 83d Cong., as amended) of the Department, which have similar objectives, the planning criteria, economic justifications, local sponsorship requirements, cost sharing, structural limitations and other procedures and policies used in the flood prevention program have been adjusted to generally parallel those of the watershed protection program insofar as possible within the provisions of the Flood Control Acts.

As of June 30, 1959, work plans had been developed for 17,261,243 acres or about 56 percent of the 30,997,037 acres in the authorized portion of the watersheds. During 1959 work plans were developed for eight subwatersheds and one area within a subwatershed. An additional 76 work plans were in the process of being prepared or revised as of June 30, 1959.

The following table lists some of the major watershed works of improvement which were installed cooperatively by the Department agencies and local cooperators in the fiscal year 1959 and total measures on the land on June 30, 1959:

TABLE I

| Type of improvement | Unit | 1959 accomplishments (actual) | | Total on the land, June 30, 1959 |
|---|---|---|---|---|
| | | With flood prevention funds | With conservation operations funds | |
| Structural measures: | | | | |
| Floodwater retarding structures | Number | 161 | | 744 |
| Stabilization and sediment control structures | do | 29 | | 686 |
| Silt and debris basins | do | 7 | | 398 |
| Outlet construction | Miles | | | 11 |
| Grassed waterways | Acres | 37 | | 110 |
| Channel stabilization | Miles | 14 | | 218 |
| Channel improvement | do | 84 | | 1,112 |
| Diversion construction | do | 2 | | 91 |
| Levees and dikes | do | | | 31 |
| Channel excavation | do | | | 20 |
| Roadside erosion control | do | 125 | | 3,125 |
| Revegetation | Acres | 50,959 | | 347,834 |
| Land treatment measures: | | | | |
| Contour farming | do | 52,466 | 72,238 | 2,288,035 |
| Cover cropping | do | 82,420 | 102,876 | 874,044 |
| Crop residue utilization | do | 123,026 | 168,812 | 1,655,713 |
| Diversion construction | Miles | 210 | 436 | 7,274 |
| Erosion control structure | Number | 1,028 | 108 | 8,776 |
| Pasture planting | Acres | 75,257 | 91,640 | 1,281,543 |
| Pond construction | Number | 1,262 | 2,655 | 65,600 |
| Range seeding | Acres | 19,536 | 38,188 | 383,216 |
| Strip cropping | do | 860 | 2,278 | 52,806 |
| Stubble mulching | do | 3,254 | 10,085 | 113,470 |
| Terracing | Miles | 1,076 | 1,649 | 68,829 |
| Tree planting | Acres | 18,050 | 9,949 | 211,063 |
| Waterway development | do | 1,763 | 1,858 | 52,473 |
| Wildlife area improvement | do | 2,427 | 4,293 | 271,421 |
| Woodland protection | do | 7,461 | 20,736 | 383,603 |
| Improvement cutting | do | 8,501 | 8,941 | 215,422 |
| Fire protection: | | | | |
| (a) Fire control trails and breaks | Miles | 15 | | 629 |
| (b) Structures | Number | 3 | | 126 |
| (c) Heliports and helispots | do | | | 366 |
| (d) Mobile equipment | do | 7 | | 23 |
| (e) Permanent radio installations | do | 6 | | 199 |
| (f) Telephone lines | Miles | | | 223 |

Mr. WHITTEN. I noticed in flood prevention, you have a budget reduction of $3 million below last year's level, and this year's level. Does this budget let you hold on to any carryover funds that you may have?

Mr. WILLIAMS. We could continue with any carryover funds into the next fiscal year. There would be no pulling away of those. We do not anticipate any particular amount of carryover funds remaining this year.

Do you have any information on that, Hollis, that item?

Mr. H. WILLIAMS. No.

## BACKGROUND OF PILOT WATERSHED PROJECTS

Mr. WHITTEN. In this connection, Mr. Andersen and I and this subcommittee are very proud of the watershed program, pilot plant program. I like to remind them that it started really when I got the Democratic Party to incorporate that item in its platform in 1952. That was awfully good planning, but it wasn't sufficient to keep Ei-

senhower from winning the Presidency, and the Republicans winning the control of Congress; but that didn't stop my friend, Mr. Andersen, who was chairman of this subcommittee. He initiated the program with our help in 1953, without budget authorization, and I am proud of the progress it has made.

Mr. ANDERSEN. Would you yield, Mr. Chairman? Had it not been for the help of Mr. Whitten, that he gave at that time, and Mr. Horan and Mr. Marshall and Mr. Clifford Hope of Kansas, we would never have gotten that in the bill. It was a subcommittee effort. It just happened to carry the name of Andersen-Hope. I am rather proud of that little distinction, and I do want to give the subcommittee, especially the chairman, full commendation for your part in it.

Mr. WHITTEN. I appreciate that. The other names not mentioned were not on the committee, but we have had their full support since that time, and I think everybody is glad of it. But the point, again, I make of it is that when that was initiated, we at that time had this flood prevention in 11 old watersheds. I note that these 11 watersheds, Mr. Williams, were on the program initiated in 1944, and it was estimated you would get the job in 15 years. Now, 16 years have passed, and the work is only 56 percent complete.

Now, if you keep dragging your feet while the Bureau of the Budget enlarges reclamation and various other work, we are liable to leave this thing where maybe I can make a career of just staying here and getting a little money every year for 50 years.

Mr. ANDERSON. Would you yield at that point? I think in all sincerity, and all seriousness, that it has been very deplorable, the rate of speed that we have carried on the planning and construction work of these 11 authorized watersheds. I am joined in that opinion by the Speaker of the House, Mr. Rayburn, who several times has come in here and complained about the lack of fair rapidity in bringing these 11 watersheds to completion.

As far as I am concerned, I would vote, Mr. Chairman, for an increase on this particular item. I am getting tired of seeing it drag along. If you want to try to put in a few million additional above the budget on this, Mr. Chairman, I will go along with you.

Mr. WHITTEN. Well, I appreciate the statement of my friend. From my standpoint, I have taken a view in times past that it is not always the level of money. A few million more for this work would look good. It would sound well. But how sound it was would be dependent on the other personnel and your ability to properly utilize it. I would much prefer to find out, if you would tell us, Mr. Williams, from a personnel and ability-to-perform standpoint, what you could properly use, in your judgment; and I am asking you that question because I am asking you to give figures over and above the budget on a proper basis.

Mr. WILLIAMS. We are staffed at the present time on these 11 authorized watersheds at an $18 million level, which is the appropriation this year. I would seriously question whether we could effectively, without additional recruitment and training of people, use more than, say, a $20 million figure for the 11 authorized projects in one fiscal year increase.

Mr. WHITTEN. In other words, it ties back to your ability to perform?

Mr. WILLIAMS. That's right.

Mr. WHITTEN. For the budget, could you give us in the record the rate of progress in these various watersheds, and how you would apply this cut that the budget recommends? Do you have that for the record? You might have for each watershed the percentage of completion, so that we might have some comparison there.

COMPARISON OF SCS AND ARMY ENGINEERS PROJECTS

Mr. ANDERSEN. Mr. Chairman, before that information goes into the record, may I continue on this other that we were speaking about, the 11 authorized watersheds? I just wanted to make a comment. I was in my other subcommittee this morning, gentlemen, that dealing with public works. We discussed this morning a flood control project carrying a total of $106 million for the one reservoir or dam, with a benefit-to-cost ratio of just 1.01 to 1. There we have that project in the budget, okayed by the budget. Our other subcommittee was asked to give our stamp of approval.

Now, when we are asked that sort of money for one very doubtful project which the budget okays, and which the Army Engineers okay, I again wonder whether or not we are doing justice by these far better methods of approach and that includes the entire watershed approach. If we can save, through those 11 authorized watersheds, Mr. Peterson, the need for one dam like this we can render a great service. But instead of asking for $18 or $16 million for that, if we can gradually step it up and push it along to completion before Mr. Whitten and I leave the Congress, I think perhaps, gentlemen, we might save the taxpayers a good deal of money.

The question came up in that subcommittee this morning, asked by one of our distinguished committee members: Are you sure, they asked of the Army Engineers, whether you are going along on this, whether you are pursuing this problem in the right course? Do you not feel that perhaps a lot of this should be a problem that should be assigned to the Soil Conservation Service?

And so there is an area of question in there. But I am pointing out, Mr. Chairman, that here the very same full Appropriations Committee has this very doubtful project, 1.01 to 1, involving $106 million of the taxpayers' money, and the purpose as ascribed was to prevent too much water at one time going down into the lower levels. But that is a lot of money, gentlemen. When I think what we could do in Soil Conservation Service with $106 million in technical personnel and watershed funds added intelligently over the next 10 or 15 years I am sure we could accomplish more good for the taxpayers and the people of America than putting all that into one dam.

I think Mr. Natcher nods agreement with me in my sentiments. I will yield to him for his comments.

Mr. NATCHER. I certainly agree that any water resource projects that have a benefit-to-cost ratio such as that one, certainly should receive close scrutiny. I agree with my colleague as to his statement concerning our watershed program generally. That's all, Mr. Chairman.

Mr. ANDERSEN. I don't care, Mr. Natcher, frankly, whether those watershed projects, gentlemen, are down in Texas or Oklahoma or Mississippi or Michigan or Minnesota. I think for the good of America here is one place we should be liberal in developing these watershed protection projects wherever we can. And then, of course, along with it, putting in sufficient trained Soil Conservation Service personnel to do the job we have got to do.

I think otherwise that we are falling down on our duty to the future millions of people.

You, yourself, Mr. Peterson, in your statement make a very good case for my argument in the message you bring to the committee this morning. You have said substantially what I have said. You state here, the future demand on the farm and the forest land of our country are of large dimensions. In a few years the demands upon our soil and water resources will far surpass both the past and the present.

I agree with you, but you don't back up what you say in your budget recommendations. Off the record.

(Discussion off the record.)

(The information requested follows:)

*Flood prevention—11 authorized watersheds total works of improvement program (1958 prices)*

| Watershed | Area | Estimated total Federal cost | Cumulative obligations June 30, 1959 | Remaining to be done after June 30, 1959 | Estimated completion June 30, 1959 | Time to complete installation after June 30, 1959, at appropriation rate of— | |
|---|---|---|---|---|---|---|---|
| | | | | | | $18,000,000 | $15,000,000 |
| | *Acres* | *Dollars* | *Dollars* | *Dollars* | *Percent* | *Years* | *Years* |
| Buffalo Creek, N.Y. | 279,680 | 5,044,731 | 3,239,402 | 1,805,329 | 64 | 5.5 | 6.5 |
| Colorado (Middle), Tex. | 4,613,120 | 34,952,807 | 6,609,595 | 28,343,212 | 19 | 14.4 | 17.4 |
| Coosa River, Ga. | 1 339,400 | 9,313,801 | 3,328,598 | 5,985,203 | 36 | 7.7 | 9.4 |
| Little Sioux River, Iowa | 1,740,800 | 29,016,815 | 10,075,168 | 18,941,647 | 34 | 21.0 | 25.6 |
| Little Tallahatchie River, Miss. | 963,977 | 16,107,016 | 6,424,818 | 9,682,198 | 40 | 10.5 | 12.7 |
| Los Angeles River, Calif. | 536,960 | 21,444,869 | 10,650,045 | 10,794,824 | [1] 39 | 7.9 | 9.6 |
| Potomac River, Md., Pa., Va., W. Va. | 4,205,400 | 18,305,950 | 3,124,869 | 15,181,081 | 17 | 16.8 | 20.4 |
| Santa Ynez River, Calif. | 576,000 | 4,175,400 | 2,158,542 | 2,016,858 | [1] 41 | 7.9 | 5.9 |
| Trinity River, Tex. | 8,424,260 | 93,436,914 | 20,834,943 | 72,601,971 | 22 | 20.0 | 24.3 |
| Washita River, Okla. | 5,095,040 | 54,299,100 | 20,083,662 | 34,215,438 | 37 | 7.9 | 9.7 |
| Yazoo River, Miss. | 3,222,400 | 45,499,120 | 11,955,954 | 33,543,166 | 26 | 14.5 | 17.5 |
| Total works of improvement | 30,997,037 | 331,596,523 | 98,485,596 | 233,110,927 | 30 | 13 | 15.9 |
| Emergencies | | | 1,256,186 | | | | |

[1] Does not include funds used for operation and maintenance of installations on Federal land. Operation and maintenance of measures installed on Federal land authorized by survey reports for period of 50 years.

Mr. ANDERSEN. You do offer, you say this on page 3 of your statement:

> By the year 2010 our population will be double what it is today, according to Census Bureau estimates.

And you say down further:

> It would be patently unwise to wait until the time of need arises to protect the productive capacity of the land.

I can't agree with you more if I said that myself. I am just trying, however, to implement that belief.

As far as I am concerned, gentlemen, I think it is time we got down to business on this watershed program instead of letting all the money go into huge public works projects. In the public works budget they are asking for about $45 million more this year. I think at least that we should add that much in agriculture to the protection of 900 million acres of land in some good form of technical assistance, plus watershed protection programs, and I think all of us can sleep better at night for so doing.

Mr. WHITTEN. Two brief items here: In my own area, which is in the middle of the Yazoo and Little Tallahatchee watersheds, you maintained a seed unit near the town of Coffeeville, for quite some number of years. I have been urged to discuss with you the possibility of transferring the present activities there, where you own the land and equipment and other things, to a plant materials center. Is that something that you need, or is that in line? Is that something that could well be used for this purpose, Mr. Williams?

Mr. WILLIAMS. The Coffeeville seed production unit was set up specifically for production of seed on Government land, from the land utilization project lands, for the Federal flood control activities in the Little Tallahatchee River area. Seed was produced at that location of these lands, seed of various kinds, such as fescue grass, hay, and various other kinds of seed. However, about 2 years ago, we determined that it would be more economical from the standpoint of the use of the Federal funds if we did not continue that seed production unit, but rather contracted to purchase the seed that would be needed for that particular area.

So we have contemplated the elimination of that activity as a flood prevention unit.

Now, we have supplied for the record in connection with the ARS hearings a complete breakdown requested, I believe, by Congressman Horan, of disposition of all of the nurseries that the Service had concern with over the years. I will say this, Mr. Chairman, in further answer to your question as to whether or not such a plant materials center is needed, I should say that from the standpoint of the various plant growth regions in the United States, that this area falls in the

upper coastal plain section, and our plant growth region No. 29. And there is no plant materials center in that immediate vicinity. There is one located at Americus, Ga., which is in the eastern portion of that general plant growth region.

Mr. WHITTEN. That answers my question.

## GREAT PLAINS CONSERVATION PROGRAM

*Program and financing*

| | 1959 actual | 1960 estimate | 1961 estimate |
|---|---|---|---|
| Program by activities: | | | |
| 1. Great Plains conservation program (total program costs [1]) | $5,862,955 | $6,847,774 | $8,000,000 |
| 2. Relation of costs to obligations: Obligations incurred for costs of other years (unpaid undelivered orders), net | 7,871,777 | 3,781,346 | 2,000,000 |
| Total program (obligations) | 13,734,732 | 10,629,120 | 10,000,000 |
| Financing: | | | |
| Unobligated balance brought forward | −4,363,852 | −629,120 | ---------- |
| Unobligated balance carried forward | 629,120 | ---------- | ---------- |
| Appropriation (new obligational authority) | 10,000,000 | 10,000,000 | 10,000,000 |

[1] Includes capital outlay as follows: June 30, 1959, $18,850; 1960, $10,275; 1961, $10,000.

*Object classification*

| | 1959 actual | 1960 estimate | 1961 estimate |
|---|---|---|---|
| SOIL CONSERVATION SERVICE | | | |
| Total number of permanent positions | 150 | 181 | 181 |
| Full-time equivalent of all other positions | 28 | 29 | 31 |
| Average number of all employees | 319 | 310 | 311 |
| Number of employees at end of year | 230 | 264 | 265 |
| Average GS grade and salary | 6.7 $5,491 | 6.9 $5,520 | 6.9 $5,556 |
| 01 Personal services: | | | |
| Permanent positions | $1,659,469 | $1,625,000 | $1,632,000 |
| Positions other than permanent | 98,752 | 104,000 | 110,000 |
| Other personal services | 8,336 | 14,000 | 8,000 |
| Total personal services | 1,766,557 | 1,743,000 | 1,750,000 |
| 02 Travel | 76,666 | 75,000 | 75,000 |
| 03 Transportation of things | 10,006 | 10,000 | 10,000 |
| 04 Communication services | 22,799 | 22,500 | 22,500 |
| 05 Rents and utility services | 10,997 | 11,000 | 11,000 |
| 06 Printing and reproduction | 53,620 | 50,000 | 50,000 |
| 07 Other contractual services | 165,138 | 101,000 | 100,000 |
| Services performed by other agencies | | 75,500 | 71,276 |
| 08 Supplies and materials | 60,539 | 56,000 | 56,000 |
| 09 Equipment | 16,022 | 15,000 | 15,000 |
| 11 Grants, subsidies, and contributions | 11,388,921 | 8,238,120 | 7,607,000 |
| 13 Refunds, awards, and indemnities | 1,091 | 1,400 | 1,500 |
| 15 Taxes and assessments | 1,920 | 2,576 | 2,700 |
| Total, Soil Conservation Service | 13,574,276 | 10,401,096 | 9,771,976 |
| ALLOTMENT ACCOUNTS | | | |
| Total number of permanent positions | 9 | 10 | 10 |
| Full-time equivalent of all other positions | 1 | 1 | 1 |
| Average number of all employees | 6 | 8 | 8 |
| Number of employees at end of year | 7 | 9 | 9 |
| Average GS grade and salary | 7.3 $6,099 | 7.3 $6,113 | 7.4 $6,139 |
| Average salary of ungraded positions | $4,553 | $4,754 | $4,754 |
| 01 Personal services: | | | |
| Permanent positions | $34,435 | $54,979 | $55,075 |
| Positions other than permanent | 1,729 | 1,759 | 1,759 |
| Other personal services | 157 | 389 | 211 |
| Total personal services | 36,321 | 57,127 | 57,045 |
| 02 Travel | 3,912 | 6,918 | 6,728 |
| 03 Transportation of things | 103 | 50 | 50 |
| 04 Communications services | 411 | 890 | 890 |
| 06 Printing and reproduction | 2,153 | 800 | 600 |
| 07 Other contractual services | 95,183 | 154,338 | 154,953 |
| Services pefformed by other agencies | 17,714 | 1,350 | 1,350 |
| 08 Supplies and materials | 733 | 1,993 | 1,850 |
| 09 Equipment | 1,629 | 900 | 900 |
| 11 Grants, subsidies, and contributions | 2,093 | 3,629 | 3,629 |
| 13 Refunds, awards, and indemnities | 150 | | |
| 15 Taxes and assessments | 54 | 29 | 29 |
| Total, allotment accounts | 160,456 | 228,024 | 228,024 |
| Total obligations | 13,734,732 | 10,629,120 | 10,000,000 |
| Obligations are distributed as follows: | | | |
| Soil Conservation Service | 13,574,276 | 10,401,096 | 9,771,976 |
| Forest Service | 29,922 | 82,000 | 32,000 |
| Office of Information | 27,762 | 20,600 | 20,600 |
| Agricultural Conservation Program Service | 9,072 | 21,424 | 21,424 |
| Commodity Stabilization Service | 93,700 | 154,000 | 154,000 |

Mr. WHITTEN. Under Great Plains conservation program, please insert pages 291 to 297 in the record at this point.

(The pages follow:)

*Great Plains conservation program*

| | |
|---|---|
| Appropriation act, 1960, and base for 1961 | $10,000,000 |
| Budget estimate, 1961 | 10,000,000 |

*Project statement*

| Project | 1959 | 1960 (estimated) | 1961 (estimated) |
|---|---|---|---|
| 1. Great Plains conservation program: | | | |
| (a) Cost-sharing assistance | $11,279,404 | $7,500,000 | $7,500,000 |
| (b) Technical services and operating expenses | 2,455,328 | 2,500,000 | 2,500,000 |
| Total employee health benefit costs (Public Law 86-382) | [ ] | [ ] | [16,000] |
| Subtotal [1] | 13,734,732 | [2] 10,000,000 | 10,000,000 |
| 1958 appropriation available in 1959 | −4,363,852 | | |
| 1959 appropriation available in 1960 | 629,120 | | |
| Total appropriation | 10,000,000 | 10,000,000 | |

[1] Represents obligations. Applied costs for 1959 are $5,862,955 and are estimated to be $6,847,774 in 1960 and $8,000,000 in 1961. The excess of obligations over costs in each year represents, primarily, contracts for cost-sharing entered into for which the conservation practices will not be installed until subsequent fiscal years.

[2] In addition, it is estimated that $629,120 available from prior-year balances for cost-sharing assistance will be obligated.

STATUS OF PROGRAM

*Current activities.*—The Great Plains conservation program authorized under Public Law 1021, 84th Congress, is carried out in those counties in the 10 Great Plains States that are designated by the Secretary as susceptible to serious wind erosion because of their soils, terrain, climate and other factors. Assistance is provided to producers in developing and carrying out plans of farming and ranching operations that will help to minimize climatic hazards, conserve water and protect their lands from erosion and deterioration by natural causes. This is a voluntary program which supplements existing departmental conservation programs and activities.

The Service enters into a long-term cost-sharing contract with a producer after agreement has been reached with him on a plan of operations for proper conservation treatment and use of all of the land in the farm or ranch operating unit. The contract may extend from 3 to 10 years. All cost-sharing contracts include a time schedule of proposed changes in cropping systems and land use and the conservation measures which are to be carried out on the farm or ranch during the contract period. The farmer or rancher who signs a Great Plains program contract is responsible for accomplishing his plan of operations and should use all available sources of assistance under other local, State, or departmental programs that contribute to achieving conservation land treatment and moisture conservation. The services of soil conservationists, engineers, or other agricultural specialists and aids are provided to assist farmers and ranchers to develop acceptable plans of operations and to install the planned land use and conservation treatment measures as scheduled in the plans covered by the contracts.

A list of practices eligible for cost-shares has been published. It includes establishment of permanent vegetative cover, field or contour strip cropping, contour cultivation, improvement of range cover, trees, or shrubs for windbreaks or shelterbelts, establishment of waterways, construction of terrace systems, chiseling or pitting of rangeland, construction of dams, development of irrigation works, construction of wells for livestock, installing pipelines, constructing fences, and controlling brush. The maximum cost-share rate offered in any contract cannot exceed 80 percent of the average estimated cost of installing each eligible practice. There is a limitation, by program regulations, of $2,500 per structure for cost-shares for developing dams or ponds for irrigation. It is the policy to limit administratively the cost-sharing amounts for all irrigation practices to $2,500 for any one contract or to about one-fourth of the Federal obligation, whichever is the larger. The cost-share ceiling for any individual contract has been set at $25,000 for a 10-year period. For a lesser period the maximum cost-share is $2,500 times the number of years the contract is to be in force.

*Program assignments*

Administrative responsibility for carrying out the Great Plains conservation program has been assigned to the Soil Conservation Service. A continuing interagency departmental committee, consisting of representatives of the Soil Con-

servation Service (as chairman), Agricultural Conservation Program Service, Agricultural Marketing Service, Agricultural Research Service, Commodity Stabilization Service, Farmers Home Administration, Federal Crop Insurance Corporation, Federal Extension Service, Forest Service, and Office of Information, has been designated by the Secretary to recommend program policies, procedures, and regulations and to assure coordination of all departmental resources in the program. State and county program committees have been established also to help coordinate the program in the respective Great Plains States and counties and adapt it to specific needs within the program regulations.

SELECTED EXAMPLES OF RECENT PROGRESS

Following is the estimated distribution of the Great Plains conservation program funds by agency between cost-sharing payments and operating expense:

| Item and agency | 1959 obligations | 1960 appropriation | 1961 estimate |
|---|---|---|---|
| Cost-sharing payments by Soil Conservation Service | $11,279,404 | $7,500,000 | $7,500,000 |
| Operating expenses: | | | |
| Agricultural Conservation Program Service | 9,072 | 21,424 | 21,424 |
| Commodity Stabilization Service | 93,700 | 154,000 | 154,000 |
| Forest Service | 29,922 | 32,000 | 32,000 |
| Office of Information | 27,762 | 20,600 | 20,600 |
| Soil Conservation Service | 2,294,872 | 2,271,976 | 2,271,975 |
| Total | 2,455,328 | 2,500,000 | 2,500,000 |
| Grand total | 13,734,732 | [1] 10,000,000 | 10,000,000 |

[1] In addition, it is estimated that $629,120 will be available from prior-year balances for cost-sharing assistance.

ELIGIBLE COUNTIES DESIGNATED BY SECRETARY

The Secretary had designated 344 counties in the 10 Great Plains States as of September 30, 1959, in which farmers and ranchers are eligible to participate in the program offered.

Colorado (28): Adams, Arapahoe, Baca, Bent, Boulder, Cheyenne, Crowley, Douglas, Elbert, El Paso, Fremont, Huerfano, Jefferson, Kiowa, Kit Carson, Larimer, Las Animas, Lincoln, Logan, Morgan, Otero, Phillips, Prowers, Pueblo, Sedgwick, Washington, Weld, Yuma.

Kansas (44): Barber, Cheyenne, Clark, Comanche, Decatur, Edwards, Finney, Ford, Gove, Graham, Grant, Gray, Greeley, Hamilton, Harper, Haskell, Hodgeman, Kearny, Kingman, Kiowa, Lane, Logan, Meade, Morton, Ness, Norton, Pawnee, Phillips, Pratt, Rawlins, Reno, Rice, Rooks, Rush, Scott, Seward, Sheridan, Sherman, Stanton, Stevens, Thomas, Trego, Wallace, Wichita.

Montana (35): Big Horn, Carbon, Carter, Cascade, Chouteau, Daniels, Dawson, Fallon, Fergus, Garfield, Glacier, Golden Valley, Hill, Judith Basin, Liberty, McCone, Musselshell, Petroleum, Phillips, Pondera, Powder River, Prairie Richland, Roosevelt, Rosebud, Sheridan, Stillwater, Sweet Grass, Teton, Toole, Treasure, Valley, Wheatland, Wibaux, Yellowstone.

Nebraska (58): Adams, Antelope, Arthur, Banner, Blaine, Boone, Box Butte, Boyd, Brown, Buffalo, Chase, Cherry, Cheyenne, Clay, Custer, Dawes, Dawson, Deuel, Dundy, Franklin, Frontier, Furnas, Garden, Garfield, Gosper, Greeley, Hall, Hamilton, Harlan, Hayes, Hitchcock, Holt, Howard, Kearney, Keith, Keya Paha, Kimball, Lincoln, Logan, Loup, McPherson, Merrick, Morrill, Nance, Nuckolls, Perkins, Phelps, Red Willow, Rock, Scotts Bluff, Sheridan, Sherman, Sioux, Thayer, Thomas, Valley, Webster, Wheeler.

New Mexico (17): Chaves, Colfax, Curry, De Baca, Eddy, Guadalupe, Harding, Lea, Lincoln, Mora, Quay, Roosevelt, San Miguel, Santa Fe, Socorro, Torrance, Union.

North Dakota (30): Adams, Billings, Bottineau, Bowman, Burke, Burleigh, Divide, Dunn, Emmons, Golden Valley, Grant, Hettinger, Kidder, Logan, McHenry, McIntosh, McKenzie, McLean, Mercer, Morton, Mountrail, Oliver, Renville, Sheridan, Sioux, Slope, Stark, Stutsman, Ward, Williams.

Oklahoma (14): Beaver, Beckham, Cimarron, Custer, Dewey, Ellis, Greer, Harmon, Harper, Major, Roger Mills, Texas, Woods, Woodward.

South Dakota (29): Aurora, Brule, Buffalo, Butte, Campbell, Charles Mix, Corson, Custer, Fall River, Gregory, Haakon, Hand, Harding, Hughes, Hyde, Jackson, Jerauld, Jones, Lyman, McPherson, Meade, Mellette, Perkins, Stanley, Sully, Todd, Tripp, Walworth, Washabaugh.

Texas (83): Andrews, Armstrong, Bailey, Baylor, Borden, Briscoe, Callahan, Carson, Castro, Childress, Cochran, Coke, Coleman, Collingsworth, Cottle, Crosby, Dallam, Dawson, Deaf Smith, Dickens, Donley, Fisher, Floyd, Foard, Gaines, Garza, Glassock, Gray, Hale, Hall, Hansford, Hardeman, Hartley, Haskell, Hemphill, Hockley, Howard, Hutchinson, Jack, Jones, Kent, King, Knox, Lamb, Lipscomb, Loving, Lubbock, Lynn, Martin, Midland, Mitchell, Moore, Motley, Nolan, Ochiltree, Oldham, Palo Pinto, Parmer, Pecos, Potter, Randall, Reeves, Roberts, Runnels, Scurry, Shackelford, Sherman, Stephens, Sterling, Stonewall, Swisher, Taylor, Terrell, Terry, Throckmorton, Tom Green, Ward, Wheeler, Wichita, Winkler, Wilbarger, Yoakum, Young.

Wyoming (6): Campbell, Converse, Crook, Goshen, Laramie, Platte.

*Program applications and contracts as of June 30, 1959*

Cumulative experience from inception of the program in late 1957 through June 30, 1959, for each of the 10 Great Plains States and in total, is shown in the following tabulation:

| State | Applications received (total) | | Contracts signed | | Active contracts | | Cost-share obligations | |
|---|---|---|---|---|---|---|---|---|
| | Number | Acres | Number | Acres | Number | Acres | Total obligations | Average per acre |
| Colorado | 248 | 1,118,549 | 117 | 570,775 | 117 | 570,775 | $1,493,387 | $2.62 |
| Kansas | 244 | 453,746 | 126 | 247,171 | 125 | 246,535 | 1,103,105 | 4.47 |
| Montana | 465 | 2,644,160 | 110 | 546,890 | 109 | 545,325 | 581,673 | 1.07 |
| Nebraska | 980 | 1,136,343 | 465 | 528,235 | 465 | 528,235 | 2,043,421 | 3.87 |
| New Mexico | 336 | 4,837,386 | 175 | 1,927,253 | 174 | 1,927,173 | 1,511,912 | 0.78 |
| North Dakota | 684 | 1,000,843 | 276 | 419,551 | 276 | 419,551 | 803,984 | 1.92 |
| Oklahoma | 272 | 772,324 | 157 | 542,096 | 157 | 542,096 | 1,193,238 | 2.20 |
| South Dakota | 231 | 1,035,144 | 92 | 304,396 | 92 | 304,396 | 532,727 | 1.75 |
| Texas | 2,329 | 4,978,420 | 1,324 | 2,378,492 | 1,317 | 2,373,706 | 5,684,706 | 2.39 |
| Wyoming | 92 | 704,753 | 44 | 319,335 | 44 | 319,335 | 625,154 | 1.96 |
| Total | 5,881 | 18,681,668 | 2,886 | 7,784,194 | 2,876 | 7,777,127 | 15,573,307 | 2.00 |

CURRENT STATUS OF APPLICANTS AND COST-SHARING CONTRACTS

As of November 30, 1959, a total of 6,549 applications involving 21,780,588 acres of land had been received from farmers and ranchers in the 344 designated countries. Conservation plans of operations had been developed and cost-sharing contracts were in effect on 3,652 farms and ranches including 10,194,004 acres. This left a total of 2,897 active pending applications for assistance on file covering 11,586,584 acres. The 3,652 active contracts as of November 30, 1959, provide for cost-share payments to farmers and ranchers in the amount of $18,710,244.

REVEGETATION OF LAND UNSUITED TO CULTIVATION

Most of the land now in cultivated crops in the Great Plains is suited to continuous production of cultivated crops provided needed conservation measures are applied and good management practices are continuously employed. There are, however, some 11 to 14 million acres of land in cultivation that are not suited to such use by reason of the character of the soils and topography and the normal low rainfall pattern as evidenced by the low and uncertain crop yields that have been received. These are the lands that constitute the major conservation problem. Good progress is being made in helping farmers and ranchers to determine what areas of their farmland are unsuited for cultivation and to make needed land use adjustments and convert these erodible areas to a permanent vegetative cover.

The 2,876 active contracts as of June 30, 1959, included 892,079 acres that had been cropland before the contracts were signed. The plans of operations

developed and made a part of the contracts provide for the conversion of 262,838 acres or 29.5 percent of this cropland to permanently vegetated rangeland or other non-cropland use. The percentage of cropland conversions ranged from 11.2 percent in Wyoming to 64.8 percent in New Mexico. In a few cases, based on the desires of the farmer and the suitability of the land for cultivation, the plans of operation in contracts provided for the conversion of rangeland to cropland. Such conversions amounted to only 2,761 acres as of June 30, 1959. The active contracts as of June 30, 1959, also specified the reseeding of 361,350 acres of depleted and deteriorated rangeland. During the fiscal year 1959 farmers and ranchers actually completed the establishment of 34,947 acres of permanent vegetative cover and reseeded 81,302 acres of deteriorating rangeland for which they received cost-sharing assistance under their Great Plains conservation program contracts.

PRACTICE PERFORMANCE IN THE FISCAL YEAR 1959

During the fiscal year 1959 (the second year of program operations) the installation of conservation practices increased at an accelerating rate in all the Great Plains States. A total of 24 conservation practices are eligible for cost-sharing assistance. Included in the following tabulation are data on practice establishment and cost-shares paid for practices GP–1, establishment of permanent vegetative cover, and GP–5, reseeding range, the practices of major significance in the Great Plains conservation program:

| State | Establishment of permanent vegetative cover (practice GP–1) | | Reseeding range (practice GP–5) (including fencing) | | All other conservation measures, cost-shares paid | Total cost-shares paid |
|---|---|---|---|---|---|---|
| | Acres | Cost-shares paid [1] | Acres | Cost-shares paid [1] | | |
| Colorado | 1,350 | $18,804 | 1,614 | $22,959 | $244,499 | $286,262 |
| Kansas | 560 | 5,965 | 33,018 | 251,998 | 9,630 | 267,593 |
| Montana | 1,079 | 7,358 | | | 18,985 | 26,343 |
| Nebraska | 7,580 | 132,649 | 1,563 | 19,444 | 209,962 | 362,055 |
| New Mexico | 6,410 | 44,568 | 1,764 | 30,556 | 314,414 | 389,538 |
| North Dakota | 5,934 | 35,666 | 49 | 435 | 87,673 | 123,774 |
| Oklahoma | 1,191 | 10,958 | 3,831 | 24,895 | 341,075 | 376,928 |
| South Dakota | 779 | 4,432 | 303 | 1,474 | 32,519 | 38,425 |
| Texas | 9,457 | 45,259 | 38,507 | 248,480 | 691,629 | 985,368 |
| Wyoming | 607 | 7,415 | 653 | 2,367 | 73,903 | 83,685 |
| Total | 34,947 | 313,074 | 81,302 | 602,608 | 2,024,289 | 2,939,971 |

[1] In addition to payment for complete treatment of the acreage reported, the amount shown includes payment to producers for completion of identifiable units toward completion of additional acreages of the 2 practices, such as seedbed preparation or fencing and payment to vendors for conservation materials or services furnished to producers.

Mr. WHITTEN. I note from the justification that the cost averages about $2 an acre, as compared with 60 cents an acre on an average for ACP.

I note also that the cost per contract to the Federal Government is about $4,000 compared with less than $250 for ACP.

I am asking you again now, whether you still contend that this intensive type treatment in the Great Plains conservation program compares favorably with trying to approach this problem through ACP or some other means?

Mr. WILLIAMS. It is my judgment, Mr. Chairman, that it does, because when you extend the number of years involved in ACP, I think you will come up with at least as much funds involved as with a one-time contract to get the complete job done.

Mr. WHITTEN. ACP, as I understand it, is limited to a 1-year operation?

Mr. WILLIAMS. That's correct.

Mr. WHITTEN. Is there authority in connection with ACP for this committee, if it saw fit, to recommend the use of longer than 1-year contracts or is that limited to 1 year in the basic act?

Mr. WILLIAMS. I believe the act was extended 1 year at a time.

Mr. WHITTEN. That was my recollection.

## WATER CONSERVATION AND UTILIZATION PROJECTS

*Program and financing*

| | 1959 actual | 1960 estimate | 1961 estimate |
|---|---|---|---|
| Program by activities: | | | |
| 1. Development of land for irrigation (total program costs) | $242,270 | $75,150 | $60,000 |
| 2. Relation of costs to obligations: | | | |
| Costs financed from obligations of other years (unpaid undelivered orders), net (−) | | −150 | |
| Obligations incurred for costs of other years (unpaid undelivered orders), net | 112 | | |
| Total program (obligations) | 242,382 | 75,000 | 60,000 |
| Financing: | | | |
| Unobligated balance brought forward | −17,185 | −109,803 | −109,803 |
| Unobligated balance carried forward | 109,803 | 109,803 | 49,803 |
| Appropriation (new obligational authority) | 335,000 | 75,000 | |

*Object classification*

| | 1959 actual | 1960 estimate | 1961 estimate |
|---|---|---|---|
| Total number of permanent positions | 16 | 6 | 6 |
| Full-time equivalent of all other positions | 18 | 1 | 1 |
| Average number of all employees | 36 | 11 | 9 |
| Number of employees at end of year | 27 | 7 | 7 |
| Average GS grade and salary | 6.7 $5,491 | 6.9 $5,520 | 6.9 $5,556 |
| 01 Personal services: | | | |
| permanent positions | $97,863 | $55,500 | $44,100 |
| Positions other than permanent | 78,430 | 4,600 | 3,500 |
| Other personal services | 23,635 | 500 | 400 |
| Total personal services | 199,928 | 60,600 | 48,000 |
| 02 Travel | 1,388 | 1,100 | 1,000 |
| 03 Transportation of things | 348 | 300 | 200 |
| 04 Communication services | 2,034 | 1,500 | 1,000 |
| 05 Rents and utility services | 3,489 | 2,500 | 2,300 |
| 06 Printing and reproduction | 930 | | |
| 07 Other contractual services | 1,126 | 700 | 1,000 |
| 08 Supplies and materials | 28,054 | 6,040 | 4,700 |
| 09 Equipment | 13 | 50 | 50 |
| 11 Grants, subsidies, and contributions | 5,967 | 3,600 | 2,900 |
| 13 Refunds, awards, and indemnities | 3 | 10 | |
| 15 Taxes and assessments | 2,254 | 100 | 100 |
| Subtotal | 245,534 | 76,500 | 61,250 |
| Deduct quarters and subsistence charges | 3,152 | 1,500 | 1,250 |
| Total obligations | 242,382 | 75,000 | 60,000 |

### JUSTIFICATION OF THE ESTIMATE

Mr. WHITTEN. Now, I would like to include under the water conservation and utilization project, pages 304 through 309 of the justification? Here you are not asking for additional funds in this type of work.

(The pages are as follows:)

*Water conservation and utilization projects*

| | |
|---|---|
| Appropriation act, 1960, and base for 1961 | $75,000 |
| Budget estimate, 1961 | ------- |
| **Decrease (due to adequacy of funds available from prior years to furnish technical assistance and guidance to project settlers until the project is closed)** | **−75,000** |

*Project statement (on the basis of available funds)*

| Project | 1959 | 1960 (estimated) | Decrease | 1961 (estimated) |
|---|---|---|---|---|
| Development of land for irrigation [1] | $242,382 | $75,000 | −$15,000 | $60,000 |
| Unobligated balance brought forward | −17,185 | −109,803 | ---------- | −109,803 |
| Unobligated balance carried forward | +109,803 | +109,803 | −60,000 | +49,803 |
| Total employee health benefit costs (Public Law 86-382) | ---------- | ---------- | ---------- | [500] |
| Total appropriation or estimate | 335,000 | 75,000 | −75,000 | ---------- |

[1] Represents obligations. Applied costs for 1959 are $242,270. The difference of $112 reflects, primarily, the excess of orders for supplies placed in 1959 over those received in that year.

DECREASE

The schedule for the Eden Valley, Wyo., project provides for the completion of all land development for irrigation farming by December 31, 1959, and for the sale of all farming units by June 30, 1960. Some key personnel will be retained at the project during the fiscal year 1961 and into the fiscal year 1962 to assist settlers in becoming established on their new farms by extending to them technical assistance and guidance on matters of good farming practices, soil and water conservation, and efficient land use as provided in the authorizing legislation. Sufficient funds are available from prior-year appropriations to complete the planned work and no new appropriation will be required.

CHANGE IN LANGUAGE

The estimates include a proposal to delete the language of this item as follows:

"[For expenses necessary to carry out the functions of the Department under the Acts of August 11, 1939, and October 14, 1940 (16 U.S.C. 590y–z–10), as amended and supplemented, June 28, 1949 (63 Stat. 277), and September 6, 1950 (7 U.S.C. 1033–39), relating to water conservation and utilization projects, to remain available until expended, $75,000, which sum shall be merged with the unexpended balances of funds heretofore appropriated to said Department for the purpose of said Acts.]"

As indicated above, no new appropriation will be required for water conservation and utilization projects.

STATUS OF PROGRAM

*Selected examples of recent progress*

*Number projects developed.*—Nineteen water conservation and utilization projects were originally authorized for development and settlement under the Department of Interior Appropriation Act of 1940 and the Case-Wheeler Act of August 11, 1939, as amended and supplemented. Six of these projects are no longer planned for development due to inflationary land prices and other changes since they were authorized. Twelve projects have been completed. The only remaining project of the original authorization, located at Eden Valley, Wyo., is scheduled for completion in the fiscal year 1962.

*Last project at Eden Valley, Wyo.*

*Status of land exchanges.*—Land development for irrigation on the Government-owned land on the Eden Valley project was begun in the spring of 1954. At that time there were certain Federal lands on the project which were pro-

posed to be exchanged for public-domain land held by the Department of the Interior and for lands belonging to the State of Wyoming that were found to be better suited for irrigation farming. Public Law 377, approved May 28, 1954, authorized these land exchanges. The initial transfer of lands under this law from the Department of Interior to the Department of Agriculture was made in May 1955. The transfer of the remaining lands was accomplished during the 1956 fiscal year. The land exchanges between the Department of Agriculture and the State of Wyoming were completed during the 1957 fiscal year. A final transfer during the fiscal year 1960, after project development work is completed, will convey Federal lands not used in the development of the project from the Department of Agriculture to the Department of Interior.

*Status of land development and sales.*—All land development for irrigation farming on the Eden Valley project will be completed by December 31, 1959, and all sales of farms are planned to be completed by June 30, 1960. Project personnel are being gradually reduced as the project approaches completion. Some key personnel will be retained at the project into the fiscal year 1962 to assist settlers in becoming established on the new farms by extending technical guidance and advice to them on matters of good farming practices, soil and water conservation, and efficient land use as provided by the authorizing legislation. It is expected that a soil conservation district will be organized by the time the project office is discontinued. Continuing technical assistance then will be provided the project settlers under the conservation operations program of the Soil Conservation Service.

*Demonstration farm.*—By memorandum of agreement between the State of Wyoming and the Soil Conservation Service, one farm unit on the Eden Valley project is being made available to the State for use as a demonstration farm to assist settlers in planning and establishing successful irrigation and livestock practices. This unit will later be sold under the usual procedure after it has served its purpose as a demonstration farm.

*Program obligations*

The following table shows the actual obligations incurred under this program in 1959 and estimated obligations for the fiscal years 1960 and 1961.

| Project | Actual fiscal year 1959 | Estimated fiscal year 1960 | Estimated fiscal year 1961 |
|---|---|---|---|
| Eden Valley, Wyo. (direct project costs) | $215,124 | $64,000 | $50,000 |
| General administration | 27,258 | 11,000 | 10,000 |
| Total estimates | 242,382 | 75,000 | 60,000 |

DEVELOPMENT ACCOMPLISHMENTS AND WORKLOAD

The following table shows some of the more important items of development work planned, the amount completed to date, and the amount remaining to be done:

| Item | Unit | Total development planned [1] | Accomplished to June 30, 1959 | Remaining to be done July 1, 1959 |
|---|---|---|---|---|
| Topographic surveys | Acre | 161,478 | 161,478 | |
| Land classification | do | 194,089 | 194,089 | |
| Unit subdivisions | Number | 546 | 546 | |
| Clearing | Acre | 29,813 | 29,782 | 31 |
| Leveling | do | 67,380 | 67,319 | 61 |
| Farm laterals | Mile | 920 | 920 | |
| Farm drains | do | 500 | 500 | |
| Farm irrigation structures | Number | 8,996 | 8,996 | |

[1] Project reduced in scope and planned development revised as of June 30, 1958.

*Status of land development and farm sales as of June 30, 1959—all projects*

| Project | Date authorized | Irrigable acreage | Percent development completed | Federally owned tract [1] | |
|---|---|---|---|---|---|
| | | | | Total number | Number sold |
| Angostura | Mar. 6, 1941 | 12,154 | 100 | 105 | 105 |
| Bitterroot | Mar. 22, 1944 | 18,630 | [2] 8 | | |
| Buffalo Rapids I | May 15, 1940 | 14,507 | 100 | 95 | 95 |
| Buffalo Rapids II | do | 10,400 | 100 | 110 | 110 |
| Buford-Trenton | Sept. 23, 1939 | 14,729 | 100 | 134 | 134 |
| Dodson [3] | Mar. 17, 1944 | 1,200 | 100 | | |
| Eden Valley | Sept. 18, 1940 | 17,000 | 99 | 75 | 36 |
| Intake [3] | Jan. 20, 1944 | 825 | [2] 99 | | |
| Mancos | Oct. 24, 1940 | 10,000 | [2] 54 | 2 | 2 |
| Mirage Flats | Mar. 30, 1940 | 12,000 | 100 | 111 | 111 |
| Missoula [3] | May 10, 1944 | 900 | 100 | | |
| Newton [3] | Oct. 17, 1940 | 2,225 | 100 | | |
| Post Falls | Jan. 29, 1944 | 3,260 | [2] 90 | 17 | 17 |
| Rapid Valley | Nov. 8, 1939 | 12,000 | ([2]) | | |
| Scofield [3] | May 24, 1943 | 12,500 | [2] 30 | | |

[1] In addition there are privately owned lands within a number of projects on which development work is done.
[2] Projects closed, no further development work contemplated.
[3] Projects include no federally owned land.

*Project authorizations and obligations through June 30, 1959*

| Project | Present project authorization | Obligations through June 30, 1959 | | | |
|---|---|---|---|---|---|
| | | "Wheeler-Case" funds | "Great Plains" funds [1] | Contributed funds | Total |
| Angostura | $1,484,000 | $1,399,211 | | | $1,399,211 |
| Balmorhea | 569,000 | | | | |
| Bismarck | None | | | | |
| Bitterroot | 752,000 | 167,811 | | | 167,811 |
| Buffalo Rapids I | 743,770 | 99,236 | $210,000 | $424,175 | 733,471 |
| Buffalo Rapids II | 810,122 | 319,721 | 345,000 | 139,608 | 804,329 |
| Buford-Trenton | 1,094,000 | 62,798 | 762,958 | 264,838 | 1,090,594 |
| Dodson | 84,000 | 51,484 | | | 51,484 |
| Eden Valley | 2,340,000 | 1,755,711 | 154,595 | 5,061 | 1,915,367 |
| Intake | 41,000 | 20,817 | | | 20,817 |
| Mancos | 473,000 | 366,879 | | | 366,879 |
| Mann Creek | None | | | | |
| Mirage Flats | 687,300 | 479,152 | 170,000 | 36,837 | 685,989 |
| Missoula | 133,000 | 65,297 | | | 65,297 |
| Newton | 75,500 | 74,230 | | | 74,230 |
| Post Falls | [2] 196,000 | 196,367 | | | 196,367 |
| Rapid Valley | 170,000 | 7,117 | 15,042 | | 22,159 |
| Saco Divide | 480,000 | | 405 | | 405 |
| Scofield | 350,000 | 119,531 | | 12,200 | 131,731 |
| Total direct project costs | 10,482,692 | 5,185,422 | 1,658,000 | 882,719 | 7,726,141 |
| Project investigations and surveys | | 233,473 | | | 233,473 |
| General administration, Farm Security Administration | | 349,091 | | | 349,091 |
| Office of Production | | 4,137 | | | 4,137 |
| Office of the Solicitor | | 59,957 | | | 59,957 |
| Soil Conservation Service | | 931,683 | | | 931,683 |
| Total obligations through June 30, 1959 | | 6,763,763 | 1,658,000 | 882,719 | 9,304,482 |

[1] Pursuant to act of Oct. 14, 1940 (54 Stat. 1119).
[2] Net obligations after deduction for residual value of equipment is $186,545.

TERMINATION OF WATER CONSERVATION AND UTILIZATION PROJECTS

Mr. WHITTEN. Do you anticipate further appropriations for this program in future years, or does this wrap it up?

Mr. WILLIAMS. Mr. Chairman, we believe that we will wrap up this program completely with funds now available.

Mr. WHITTEN. May I say this: I haven't gone into great detail about many of these programs. It didn't come from lack of interest; it comes from the fact that I am familiar through the years with your program. I felt it wasn't necessary each and every year to go into great detail as to how the districts operate, because all the members of this committee have served before, and I am sure are thoroughly familiar with that.

CONTROL OF SEDIMENT IN POTOMAC RIVER BASIN

Mr. MARSHALL. This morning, coming here to the Capitol to work, I came over the Potomac River. I have driven over that river for several mornings since I've been in Washington, for the past 12 years, and having looked at that river the last few mornings, it is a little difficult for me to see whether there has been much control of sediment going into the river. Can you give us any information about that?

Mr. WILLIAMS. I will be very glad to comment on that, Mr. Marshall. You are aware that there is an Interstate Commission on the Potomac River, including the States which are involved in its watershed, which is giving continuous study to the various aspects of water and land use.

A short time ago, I appeared before that Commission and presented a report of the sedimentation problem of the Potomac River Basin, together with the estimates as to the sources of that sediment. And while it is true that a significant amount of the sediments is coming from the upper watershed area, the farmlands and some of the forest lands, a very high percentage of it is coming from the urbanization disturbance taking place in the vicinity of Washington, D.C., where bulldozers have completely denuded the cover and where, for considerable periods of time, extensive acreages of the land is barren to the elements, and any time we get a hard rain we see a tremendous amount of silt and sediment in the Potomac River.

But even if that source were not involved, we would still have a problem of siltation. In the appraisal, and I would be glad to supply it for the record if you would like to have it, this summation of our situation on the Potomac River—I don't have it with me, but we could supply it.

Mr. MARSHALL. I believe, with the permission of the committee, it would be a fine thing to put that in the record at this point.

(The information requested follows:)

UPSTREAM SOIL CONSERVATION FOR DOWNSTREAM POTOMAC SILT CONTROL

Talk by D. A. Williams, Administrator, Soil Conservation Service, U.S. Department of Agriculture, at the Silt Pollution Control Conference sponsored by the Interstate Commission on the Potomac River Basin, Washington, D.C., November 24, 1959

I congratulate the Interstate Commission on the Potomac River Basin for arranging this meeting to focus attention on the silt pollution problem of the Potomac. I appreciate the opportunity to participate. If constructive action is

the outcome of these discussions, this could be a historic meeting. Certainly this meeting is one of the first of its kind. It is the first such to my knowledge.

Silt pollution of the Potomac River is an end product of the serious soil erosion in its watershed. You are here because you are concerned about how we can attain a clean, inviting Potomac. You are keenly aware of the constant battle to keep the navigation channels open, dilute pollution, and prevent more of the tidal portions of the Potomac and Anacostia from becoming mudflats.

You may not, however, be equally familiar with upstream watershed developments that promise to materially aid your efforts.

From my vantage point as a soil conservationist, I would like to examine the magnitude of the problem of silt pollution in the Potomac; move upstream to the sources of the bulk of the silt load in our great river; and make a few observations about the extent to which siltation results from disturbing the earth's surface during urbanization. Finally I will offer, I believe, a little more promise for the future than is generally presented by students of the Potomac's siltation problem.

We are rapidly gaining more and more facts and experience with the soil and water conservation program, and especially with the watershed protection and flood prevention phases of it on small upstream watersheds. Our studies and experience convince me that it is feasible to aim to reduce by more than 70 percent the silt load of the Potomac River that now reaches the Metropolitan Washington area. I would like for you to bear in mind that it may cost as little as from 3 to 5 cents a cubic yard to keep soil on the land. In contrast, it costs $1 per cubic yard to dredge it from the Potomac in this area.

### DR. WOLMAN'S STUDY

At the outset I would like to pay high professional tribute to Dr. Abel Wolman and his associates for their study of the silt problem of the Metropolitan Washington area that was published by the commission in 1957.

In his report "A Clean Potomac River in the Washington Metropolitan Area," Dr. Wolman stated that the silt problem is of such magnitude that its solution should take precedence over all other pollution control activities in Metropolitan Washington. I think that we can agree with this discerning conclusion, but later in my talk I will differ with some of his other conclusions.

Let us first take a look at the downstream phase of the problem. Many facts about the Potomac are well known. Its nontidal section is 266 miles long and has an 11,580-square-mile watershed. From Three Sisters Island below Great Falls to the Chesapeake Bay the Potomac is a 115-mile stretch of broad tidal estuary.

Hydrologists note that the river behaves much like a lake during the summer and fall seasons when the fresh water flow is low. They say that during those seasons—when tide and wind have more effect than streamflow—a drop of water spends 40 days traveling the 15 miles from Three Sisters Island to Fort Washington. This explains why the Potomac between Great Falls and Marshall Hall is a natural sediment catchment basin for the 11,580 square miles of drainage upstream.

### PATTERN OF SILT DEPOSITION

The 1953 study of the basin commission presented a revealing pattern of how the silt-laden waters discharge their enormous burden. In the vicinity of Chain Bridge the investigators found flow sufficient to keep the rock bottom swept fairly clean. At Roosevelt Island and off Hains Point core samplings showed that the deposits were more than 9 feet thick. On downstream, at Fort Washington, silt was only 4 feet over the gravel bed of the river. At Marshall Hall the investigators found the fine gravel bottom practically free of silt. At that point the river showed other characteristics of clean water. Only continuous dredging keeps the navigation channels open in the metropolitan area.

We have no precise figure for the silt load deposited annually in Metropolitan Washington's Potomac and Anacostia waters. The best estimate seems to be about 2½ million cubic yards. The extent of the soil erosion problem in the Potomac watershed is apparent when we realize that on eastern rivers only about one-fourth of the soil moved from a field by water erosion enters into the main stem of a river.

How long has silt pollution been a problem in our area? We know that throughout recent geologic time, up to about 1700, very little silt had been deposited in the extreme upper end of the Potomac tidal area.

SILT BECOMES CONCERN IN 18TH CENTURY

Our hydrologists tell me that in 1711 Baron Christopher D. Graffenried, a Swiss, explored the upper Potomac region for a site on which to settle refugee miners from Germany. Graffenried selected as one possible site the angle between the river and Rock Creek, where Georgetown now stands. The Swiss gave as his reason that the Potomac at this point was suitable for the sailing of what in those days were the great merchant vessels. Early maps of the region also confirm that so long as the primeval forest existed in the Potomac River Basin very little silt was deposited near what is now Metropolitan Washington.

Silting became a matter of concern in the early part of the 18th century as a result of clearing and cultivation of lands for tobacco raising in the watershed area above Washington. Export of tobacco was the principal reason for the founding of Georgetown, Bladensburg and other early settlements in the metropolitan area.

Silting became progressively worse for the next 200 years, as far as we can determine from historical accounts as well as records of dredging.

We have reasons to believe that the amount of silt from the watershed above Great Falls has diminished somewhat as a result of the beginnings of application of farmwide soil and water conservation programs. But this gain insofar as benefit to the city of Washington is concerned, may have been more than offset in the last 20 years by erosion caused by rapid growth and urban development of the metropolitan area. I point all of this out to make the distinction between geologic and man-accelerated erosion—the erosion that has come as man has used the land without much attention to soil washing. Man's occupancy of the land and his influence on erosion are our primary concerns here.

NEARLY HALF OF BASIN'S AGRICULTURAL LAND IS NOW CLEARED

Natural geological processes of erosion have been accelerated greatly in many sections of the Potomac watershed. Topsoils that were many centuries in forming have been eroded away in a single rainstorm because of improper land use and inadequate protective programs. Over that kind of erosion and resulting sedimentation we can exercise a certain amount of effective control.

Nearly 9 million acres in the Potomac Basin above Washington are classed as agricultural land. Less than half of this acreage is cleared. Even so, the soil and water conservation job looms large.

In a few months the Department of Agriculture should have an authentic picture of the total remaining conservation job in the Potomac Basin. The Department now is completing a national conservation needs inventory on all non-Federal lands in the country. All field work for the basin has been completed and tabulated but the findings are not yet interpreted.

More than half the Potomac Basin is wooded. Federal acquisition of land for the national forests of the basin began a half century ago. Now comprising 7 percent of the basin above Washington, national forest lands have been brought continuously to a higher state of protection and improvement. Additional National Park and State owned lands, which also are being improved constantly, bring the total of land in the basin under public ownership to 13 percent.

What then, are the major sources of sediment in the Potomac?

Our studies of sediment in eastern river basins of similar characteristics show one fact clearly: The great bulk of the silt from rural areas, ordinarily from 80 to 90 percent, comes from cultivated cropland. Pasture and woodland contribute most of the remainder. Streambank and roadside erosion, although occasionally of local concern, probably do not produce more than 10 percent of the total silt load that reaches a point as far downstream as Washington.

PIEDMONT AREA YIELDS MOST SILT

Of the total acreage in the Potomac watershed, nearly one-fourth (23½ percent) is cultivated cropland. Grouped by physiographic areas, 10 percent of the cultivated land is in the Coastal Plain, mainly below Washington; 32 percent is in the Piedmont area; 42 percent is in the Shenandoah Valley; 14 percent is in the ridge area west of the valley, and less than 2 percent is in the Appalachian plateau on the western fringe.

The greatest contribution of silt to the Metropolitan Washington area comes proportionally from the closest sources. So it is likely that the Piedmont area, with one-third of the basin's cultivated cropland, is the largest silt contributor

in the watershed. The Shenandoah Valley, with its 42 percent of the basin's cultivated cropland, is a close second.

Carl Brown of my staff has long been a student of both the erosion and sedimentation problem of the Potomac Basin. This afternoon he will discuss the noticeable headway the soil conservation district program is making in the basin. He also will review the small watershed protection and flood prevention activities that deal with phases of the problem beyond the control of the individual cooperating farmer. But permit me a few generalizations.

Programs to control sheet erosion are designed to protect the soil against the shattering impact of raindrops and reduce rapid runoff. Sheet erosion halts when the land is used properly and protected by vegetation and other measures that strengthen the soil's resistance to washing. Land too steep for cultivation should be put into pasture or woodland. Land not suitable for continuous row crops ideally should be placed in rotation with other crops such as small grain and meadow to maintain productivity of the soil and to provide protective cover for a good part of the time.

Erosion losses from sloping land may be reduced further by decreasing the effective length of slope. That can be done by contour cultivation and terraces that intercept runoff at regular intervals down the slope and prevent the onrush from building up to erosive flow. The cover of range and forest lands can be improved by protection from fire and by proper use and management.

### PROGRESS OF SOIL CONSERVING FARMERS

The Soil Conservation Service began assisting Potomac Basin farmers with their soil and water conservation problems a quarter century ago. The extension services of Virginia, West Virginia, Pennsylvania, and Maryland have carried out the pioneering educational work in soil and water conservation with farmers in the area. The Agricultural Conservation Program Service provides cost-sharing payments to help in the installation of selected conservation practices. The Farmers Home Administration makes or underwrites loans for conservation improvements. State fish and game agencies are improving wildlife resources and State forestry agencies give specialized help in the protection, improvement, and management of privately owned woodlands. The whole Potomac Basin with the exception of parts of Fauquier County, Va. is in soil conservation districts that have been organized by landowners and are run by locally elected governing bodies of district supervisors. The first of the 22 soil conservation districts, partly or entirely in the basin, was Catoctin Soil Conservation District in Maryland, formed in 1939, and the last was Somerset County Soil Conservation District, Pennsylvania, which was formed in 1957.

Nearly half of the 43,000 farmers in the basin have become cooperators with their soil conservation districts, and that is a big step forward. By now nearly one-third of the farmers have worked out what we term basic farm conservation plans—the combination of land use and protective measures built into the farm's operating pattern that will keep the soil fertile and guard it from washing. As they have switched to the conservation systems of operation, these farmer-operators have converted 206,000 acres to contour farming, installed contour stripcropping on 166,000 acres, seeded 137,000 acres of new pasture, and put some 14,000 acres into woodland by tree planting. It is interesting to note that woodland planting equaled the 14,000 acres of land cleared for crops or pasture in the same period. In improving water management, the farmers have built 9,500 farm ponds, installed 550 miles of diversion terraces and improved the profile drainage of some 27,500 acres. In spite of these gains, we know that our conservation needs inventory will show that the new management approach—soil and water conservation systems of farming and supporting watershed protection and flood prevention work—has just been fairly well introduced in the territory.

### WATERSHED PROTECTION ADVANCES

On the watershed side, some 4,205,400 acres in the upper basin were authorized by the Flood Control Act of 1944 as 1 of 11 watershed projects for works of improvement for runoff and waterflow retardation and soil erosion prevention.

The project comprises about 57 percent of the basin above Washington, including generally the areas above Cumberland, Hancock, Strasburg, and Front Royal. The estimated Federal cost of this project, based on 1958 prices, is $18 million. This is mostly for technical assistance and construction of structural measures. Local costs, mostly for land treatment measures, probably will be double the Federal cost.

The Department received its first appropriation to begin work in the upper basin in fiscal 1947. We had only token amounts to work with until the last three years. Federal funds obligated through fiscal 1959 were $3,125,000. The 1960 fiscal year funds available are $1,120,000.

Under the provisions of the Watershed Protection and Flood Prevention Act, Public Law 566, enacted in 1954, we have had four applications for assistance in developing watershed projects in the area below the authorized flood prevention project in the upper basin. One of these, Gilbert Run, a watershed of 28,600 acres in Charles and St. Mary's counties, Md., has been authorized for construction. The estimated cost of this project is $790,000, of which the Federal share is 81 percent. The main Gilbert Run improvements, in addition to land treatment, are three floodwater retarding and sediment control structures and 9 miles of channel stabilization work.

Planning has been started on the other three watersheds, all of which are in Maryland above the Metropolitan Washington area. One is the Little Antietam Creek, a watershed of 20,000 acres in Washington County; the second is Beaver-Middle Run watershed of 16,200 acres in Carroll County; and the third is Rock Creek in Montgomery County, which contains 40,300 acres above the District line.

Thus the opportunities for expansion of the watershed protection work in the piedmont and coastal plain sections of the basin are already being realized, even if on a small scale so far.

### URBANIZATION AND SEDIMENTATION

Now for a look at the problem of sedimentation that rapid urbanization has brought to Metropolitan Washington. All of us are familiar with what I have termed the "rurban" Rock Creek sediment problem. By 1957 this once predominantly rural drainage area had become 56 percent urban. From the evidence of closing out farm sales and new real estate developments we know the urbanization pace has quickened since 1957. Our studies indicate that if urbanization of the whole watershed becomes an accomplished fact, 27 percent of the area, would be in impermeable cover as houses and streets, and 73 percent in permeable cover. Present trends indicate that about 750 acres are under construction each year in various stages such as:

250 acres, being cleared and graded,
250 acres, houses under construction,
250 acres, new grading and seeding.

The rate of erosion for an area under construction can be expected to increase three to six times over the average rate for a rural agricultural area. Once grading, seeding, and paving is completed, we feel the amount will decline to a stable rate comparable with that from pasture areas.

From the standpoint of the whole metropolitan area, Dr. Jerome P. Pickard of the Washington Board of Trade has estimated that the urbanized area now totals 350 square miles, or 3½ times the area originally ceded by Maryland and Virginia for the District of Columbia. Dr. Pickard, Economic Development Committee Research Director, estimates that new development is adding about 5 square miles a year. He predicts the growth of the metropolitan area from a little more than 2 million at the present time to about 4,500,000 in 1980, only 20 years from now. Dr. Pickard also predicts that the anticipated increase in population will result in an expansion of the urbanized area from the present 350 square miles to about 810 square miles by 1980.

Rosser Payne of the Fairfax County Virginia Planning Commission, has provided us with information that indicates that approximately 20 percent of the developing urban area of that county is torn up at a given time.

Our study of the rate of silting of Lake Barcroft in Fairfax County shows the sediment yield from the watershed from 1938 through 1957 was more than double that from 1915 through 1937. In 1957 two-thirds of the 15-square-mile watershed behind the Lake Barcroft dam was urban, compared with the predominantly rural situation 20 years earlier.

### GREENBELT LAKE SEDIMENTATION RATE DECLINES

Our studies of Greenbelt Lake in Prince Georges County, Md., indicate that the sedimentation rate of urbanized areas should decrease to a satisfactory level once homesite development is completed. We made our first sedimentation survey of Greenbelt Lake in 1938, 2 years after the dam was completed, and resurveyed it in 1957. Our studies showed that the lake's sedimentation rate between 1936 and

1938—the initial period of residential construction—was 3½ times as great as it was during the longer succeeding period from 1938 to 1957. In 1938 one-fourth of the lake's drainage area was developed for residential use. By 1957 urbanization was more than two-thirds accomplished.

During the 1936–38 period 150 sloping acres were laid bare in course of construction of the Greenbelt development and highways leading to it. The reduction in rate of siltation since 1938 came in spite of additional extensive construction of barracks and apartments for the military during the early 1940's.

Urban developers, county planning folks, highway engineers, State water agencies, and others are woefully short on facts and techniques when it comes to dealing with the problem of erosion and sedimentation control brought on by urbanization. I point this out to call attention to the need for research in this troublesome sphere of the silt pollution problem.

Urbanization brings a "here today, gone tomorrow" problem into the silt pollution picture of the Potomac. In terms of the total contribution to the Potomac's estuary, it probably is not a major factor, percentagewise. Most certainly though, action should be taken locally to minimize the silt contribution from subdivision expansions, sewer and water trenches and roadway construction within the metropolitan area. This might involve among other things, changes in loan requirements for housing developments, storage of silt immediately below construction areas in temporary desilting basins, and zoning ordinances.

### CURRENT EROSION RATE ESTIMATE

I have said that we have no precise picture of the Potomac's silt load. To get needed facts we have initiated a study in the Potomac River Basin as a part of our current cooperation with the Corps of Engineers. First we will compute the amount of erosion in the some 100 land resource areas. As a second step, we will relate erosion to sediment yield. We have completed the field work on the bottomlands where we studied streambank erosion, flood plain scouring and related phenomena. At the present time we are completing an estimate of sheet erosion losses from data that will be a part of the national soil and water conservation needs inventory. When this study is completed we can discuss the problem in less guarded tones.

### POSSIBLE SOLUTIONS

I said that I would like to offer a little more optimistic view of the silt pollution problem than some students present.

Dr. Wolman set forth in his 1957 report that four courses lie open with respect to the Potomac's silt deposition here. They are:

(1) Reduce the rate of erosion,
(2) Remove the silt in upstream reservoirs,
(3) Dredge it from the river in Washington, and
(4) Allow the river to fill.

Dr. Wolman insisted rightly that the last alternative, allowing the river to silt full, is unacceptable. He urged that dredging should be followed to the fullest extent practical in the area. But he cautioned that because of the exhaustion of fill areas it probably would not be possible to dispose of amounts greater than carried to the river by Rock Creek, the Anacostia and other local drainages.

In Dr. Wolman's view, this leaves the first and second alternatives. He looked upon the conservation of agricultural lands as helpful, but held that erosion control, as practiced on farms, is not a complete answer to the silt problem. With that we can agree, but we believe it can be a larger factor than he supposed. In his report Dr. Wolman stated, and I quote:

"Much of the erosion is along the river banks, gullies, and roadside ditches. As is the case with farm lands," he said, "some of this can be controlled and some cannot. It is doubtful whether even the most complete erosion control program would reduce siltation by more than one-half over the whole of a large drainage basin. It is in the nature of geologic processes that rivers cut down the mountains. The Potomac brings the mountains to Washington.

"Interception of the silt in one or more reservoirs offers the only reasonable solution to Washington's silt problem," Dr. Wolman continued. "The most important of these reservoirs is the one closest to Washington for it will bear the brunt of the high erosion of the Piedmont plateau. Although a reservoir must soon be built at Riverbend in order to provide an ample water supply

for the Washington region, it is here considered (in the Wolman report) that an equally important function of this large reservoir will be silt detention. In order to do the latter job, the reservoir must be large."

I will not enter into the pros or the cons of the proposed Riverbend Reservoir that Dr. Wolman envisioned. We feel, though, it is important to understand that silt control is not dependent solely on a Riverbend Reservoir. A program of soil and water conservation and upstream watershed protection could accomplish a major part of the silt reduction effect that would be achieved by a Riverbend Reservoir. If energetically pushed, the program could be carried out in a period not too much longer than it would take to plan and construct such a reservoir. Note that I'm referring only to solving the silt problem, not the problem of water supply nor of flood control.

### WATERSHED PROGRAM FOR EFFECTIVE SEDIMENT CONTROL

Available data amply support the conclusion that a comprehensive erosion control program in a drainage basin such as the Potomac would have a highly significant effect in reducing silt loads reaching downstream points.

Our studies in connection with development of 22 watershed work plans in the upper Potomac Basin show that a 57 percent reduction in sheet erosion is attainable on the average, from the practical type soil conservation program that is now being put on the land by farmers. In the Piedmont area—the greatest source of sediment reaching the metropolitan area—we believe that a two-third reduction in sheet erosion losses from crop, pasture, and woodland is practically attainable over the next 20 years. This presumes, of course, a vigorous program of Government aid in conservation education, technical assistance and cost-sharing. Perhaps an equal percentage of the erosion loss from streambanks and roadside ditches, which probably do not contribute more than 10 percent of the total sediment, can be stopped by appropriate treatment measures.

The development of systems of retarding structures for flood prevention and sediment control greatly increases the effectiveness of the upstream program on downstream sediment abatement. We've made measurements on a number of such structures. These measurements show the designs we are using cause trapping an average of 95 percent of the sediment coming from their watersheds over a 50-year period.

In the four subwatersheds in Virginia and West Virginia which are now under construction, we are assisting in the building of 58 floodwater and sediment control dams. More than 31 percent of the 379,000 acres in these subwatersheds will be behind these dams. In the high silt-producing Piedmont area, because of more and better dam sites, up to 50 percent or more of the land could be controlled by these structures. On the average, if the economics justify it, we estimate at least one-third of the entire Potomac Basin could be controlled by retarding structures.

Thus, putting two and two together, retarding structures could hold back 95 percent of the sediment from one-third of the basin and soil conservation farming systems could reduce erosion 66 percent on the other two-thirds. If the means to get the job done were available, this program could produce a 71 percent reduction of the silt load at Washington within 20 years.

Because the job has to be done, I suggest that we raise our sights from a 50 percent reduction in the Potomac's siltation deposit through soil and water conservation and small watershed protection to more than 70 percent. As we progress with the problem here and elsewhere, I'm confident that new methods of erosion control and advanced techniques in water management may get us even higher than the 70 percent mark.

### SUGGESTED ACTION

Much of the solution of the silt pollution is in the hands of the 43,000 farmers in the basin. The critical problem of silt pollution demands that rural and urban interests and local, State, and Federal governments cooperate fully in getting the erosion and sedimentation rates down to the point where we can live with them. I urge that you do six things to help move the program along:

(1) Study the soil conservation work being done by farmers in soil conservation districts and decide what you can do to help it;

(2) Study the opportunities for sediment abatement that the small watershed protection and flood prevention program offers Metropolitan Washington and encourage the development of the program;

(3) Get together with the State associations of soil conservation district supervisors of the four States and discuss the problem with them. Get together also with the State soil conservation committees;

(4) Start a basinwide program of saluting the accomplishments of conservation farmers and good leadership in soil conservation districts;

(5) Encourage a program to control erosion in the urbanizing metropolitan area, and

(6) Help city dwellers understand the sadly overlooked fact that soil erosion affects everyone in the Potomac River estuary below Great Falls.

Many cities have found it pays to work with farmers and their soil conservation districts on such soil conservation measures as gully control structures, flood prevention dams and tree planting. Still others have bought all or part of their reservoir watersheds and planted the critical sediment-source areas to pastures or woods.

Now that you are beginning to see the light of day in your efforts on sewage disposal, let me encourage you to apply the same determination, ingenuity and teamwork to the present No. 1 problem of silt pollution.

Mr. MARSHALL. There is a river that runs right in the shadow of the Capitol that certainly isn't a river we can be proud of, at least the way it has looked the last few mornings.

Mr. WILLIAMS. One of the major sources of pollution in the river is, of course, the silt that is in it.

### NUMBER AND AMOUNT OF LOANS

Mr. MARSHALL. In connection with the conservation loans that have been made, I wonder if you would put in the record the number of loans that have been made, and the average cost of those loans, and I mean by average cost to include in that the work of the Soil Conservation Service, and the work of the Farmers Home Administration in their administration of that program.

Mr. WILLIAMS. We would have to obtain that information from the Farmers Home Administration. A representative is here, and perhaps he could tell you as to whether that would be available.

Mr. BARNARD. Are you referring to the soil and water conservation or to the watershed protection loans?

Mr. MARSHALL. I am talking about the loans that you make for——

Mr. BARNARD. We make loans in this watershed protection program, and also under the soil and water conservation program, where the Soil Conservation Service does provide technical service occasionally——

Mr. MARSHALL. Mr. Williams; the ones Mr. Williams referred to in his statement are the ones I am interested in.

Mr. WILLIAMS. The ones I referred to in the last portion of my statement were to the providing of technical services to the Farmers Home Administration in connection with their regular soil and water conservation loan program.

Mr. MARSHALL. That is the loan I was referring to.

Mr. BARNARD. Yes, sir; I will prepare the information for the record.

(The information requested follows:)

The following is a list of the number and amount of soil and water conservation loans made since the August 17, 1954, amendments to the Water Facilities Act broadened the authority to the entire United States and included soil con-

servation as one of the authorized purposes. This list is cumulative from September 17, 1954, through January 31, 1960.

| Type of loan | Number | | | Total amount | Average loan |
|---|---|---|---|---|---|
| | Initial | Subsequent | Total | | |
| Direct: | | | | | |
| Individuals | 2,690 | 309 | 2,999 | $12,332,849 | $4,112 |
| Associations | 121 | 13 | 134 | 6,575,488 | 49,071 |
| Total direct | 2,811 | 322 | 3,133 | 18,908,337 | 6,035 |
| Insured: | | | | | |
| Individuals | 5,608 | 321 | 5,929 | 30,183,157 | 5,091 |
| Associations | 72 | 2 | 74 | 2,947,875 | 39,836 |
| Total insured | 5,680 | 323 | 6,003 | 33,131,032 | 5,519 |
| Total direct and insured | 8,491 | 645 | 9,136 | 52,039,369 | 5,696 |

It is not possible to include in the average loan cost, the work of the Farmers Home Administration in the administration of the soil and water conservation loan program or the cost of the work of the Soil Conservation Service which is devoted to this program. No records are kept of the time devoted by Soil Conservation Service employees to this program and no record is kept by the Farmers Home Administration which would directly relate its cost to the loans made under this program. The following is a statement of the manner in which soil and water conservation loans are made, including the technical assistance required by applicants. The Farmers Home Administration has a few engineers who assist county supervisors in the review and evaluation of preliminary engineering plans submitted by applicants for soil and water conservation loans. Applicants are responsible for obtaining the technical assistance necessary to plan, install, construct or establish the improvement or facility to be financed with such loan. In many cases, the required technical engineering service can be obtained by the applicant from the Soil Conservation Service. Engineering counseling is often available to the applicant from the local equipment supplier who is selling the facility. In other instances, the FHA county supervisor is in a position to advise the applicant regarding the technical assistance available through local, State, and Federal agencies and private individuals and firms that perform the type of work to be done. The FHA county supervisor, with the assistance of the FHA engineer, is responsible for assisting the applicant in evaluating the economic soundness of the proposed improvements, determining if they are in accordance with recommended practice, and determining if the cost estimates appear to be complete and reasonable. The cost of furnishing this assistance to applicants in connection with the preliminary planning of such improvements or facilities is part of the overall county office costs which are not broken down to reflect the cost of this particular activity.

Mr. NATCHER. No State in the Union has received more benefits from the Soil Conservation Service than my home State of Kentucky. From time to time, Mr. Williams, as you know, we hear predictions made as to what the population will be in the United States in the year 1970. I believe the estimates for 1960 total approximately 180 million people. I believe, and am definitely of the opinion, that our soil and water conservation program will mean more to us in the year 1970 than it does at the present time, and will be considered one of our important programs at that time.

Now, I want to call to your attention one or two questions where there is some confusion in my mind as to this program. I want to call your attention, Mr. Williams, to page 227 of the justifications; also page 228. I have carefully checked the justifications insofar as the small watershed program is concerned. Now, as I pointed out,

Mr. Williams, this program, under the justifications beginning on page 227, there are several things that I do not understand.

DECREASE IN PLANNING FUNDS

For example, planning funds are reduced from $4.9 million to $3.5 million. The explanation on page 228 is that the recent planning activities would result in completion of more plans than the number you can help with works of improvement. Does this mean, Mr. Williams, that the budget does not provide enough money to start construction on more than 32 watersheds; or does it mean that local people will not be ready to start on more watersheds; or, Mr. Williams, does it mean that you are unable to secure enough engineers to carry on and help on more watersheds?

How do you justify cutting back on plans when the number of applications for planning help is on the increase, as set forth on page 228 of the justifications?

Mr. WILLIAMS. Mr. Natcher, the budget allowance for this particular item was made with respect to the overall Federal financial situation, and the amount of $5 million increase for Public Law 566 operations, appeared to the President, I believe, as being the maximum amount which he could provide for the project in view of that overall situation.

The reduction in planning funds, of course, is made consistent with the amount of money to go into construction because, if you are only going to go ahead so fast with the construction, it is unwise to plan too many years ahead for that work. It is not due to any particular problem in obtaining technicians, engineers, or otherwise. Engineers are historically in short supply, but they are more readily available now than they have been in some years.

Mr. NATCHER. Mr. Williams, it is my understanding that you have tried to place at least one Federal planning party in nearly every State, in order to provide the planning assistance authorized by our present law. If we cut back on planning, what action would you take to live within the $3.5 million as recommended in the budget, and as pointed out on page 227 of the justification? Just what would you do, Mr. Williams?

Mr. WILLIAMS. Mr. Chairman, we have estimated that it would mean the reduction of planning parties from 42 to 30. We don't think that we can have efficiency of watershed planning by just making a cut across the board in terms of the technicians that are on such parties. So that it would be necessary to share the planning parties between two or more States in most circumstances.

There are some States, particularly up in New England, that do not have a planning party. There are now 42 planning parties for the 50 States, plus Puerto Rico.

I would like to ask Hollis if he would comment further on that point.

Mr. H. WILLIAMS. I think we would still try to keep the amount of assistance as nearly equitable as we can, but it is obvious that in reducing the planning parties from 42 to 30, that it would present some problems.

Mr. NATCHER. Which would be a serious problem, Mr. Chairman, insofar as, I think, the overall problem is concerned.

Mr. ANDERSEN. Mr. Natcher, I asked you to yield on this very point, because it happens that back in the late twenties I conducted one of the location parties in the State of Washington. There was an engineer above me and I was second in command. In the instrument work I had 14 men. We located that highway, which now extends up to Port Angeles, in the Olympic Peninsula. We had to have every man on that particular location. Every man was essential, and from that experience I know that you cannot trim down these planning parties. It would be far better to eliminate a certain group of them entirely. We must keep them complete, gentlemen, otherwise you cannot be efficient.

I say that from my own personal experience which, of course, I do not claim was too extensive. Thank you, Mr. Natcher.

Mr. NATCHER. Mr. Peterson, you and Mr. Williams have heard me say on more than one occasion that the Soil Conservation Service people in Kentucky are doing a good job. These people are dedicated people, and I want you to know that in Kentucky generally we appreciate the fact that you have outstanding pepole assigned to our State.

Now, Mr. Williams, you are well acquainted with the situation in Kentucky. You know that in Kentucky we have one Federal planning party, and also that the State has provided additional funds for the past 2 years in order to meet the local demands in Kentucky.

Can you tell me if there are other States that are forced into the same position that we are in Kentucky, in regard to supplementing Federal planning funds? If so, how does the total amount compare with the currently available Federal planning fund.

Mr. WILLIAMS. There are, Mr. Congressman, 13 States, including Kentucky, which are making appropriations or allocations of State appropriated or locally appropriated funds for watershed planning purposes. That totals for this fiscal year, I believe, approximately $1.1 million. That compares with $4.9 million that the Federal Government is putting up.

Mr. NATCHER. It is my understanding that planning party personnel are scarce, due to the fact that these people are highly trained specialists.

Now, if we go along with the budget proposals in regard to this program, and there is a 30 percent reduction in planning funds, what would you do with the surplus specialists? Would there be a drastic cutback? What would you do with these people?

How would you replace them, Mr. Williams, in 1961 or 1962, if it became necessary to have these people back in the Soil Conservation Service?

Mr. WILLIAMS. Mr. Natcher, the personnel we have on the watershed planning parties have received a great deal of training in that particular type of activity. It includes, in addition to some engineering personnel, economists, geologists, hydrologists, some types of personnel that we do not use ordinarily in our regular assistance to district activities. As far as the engineering personnel are concerned, we wouldn't have any problem there of shifting them to other activities, such as watershed construction; but from the standpoint of other

specialists, such as economists, geologists, it would be a very severe problem as to what we could do with them, because they are not usable on construction work, generally speaking.

So it would be necessary, I suppose, if we cut down from 42 to 30 parties, to go through a reduction in force of that kind of personnel, unless other agencies could utilize their services.

Mr. NATCHER. Which I think, Mr. Williams, would be a mistake. A serious mistake.

I yield to my friend, Mr. Andersen.

Mr. ANDERSEN. I just wanted to compliment the gentleman from Kentucky on the splendid presentation he has made. I wanted him to know that I agree 100 percent with him.

Mr. NATCHER. Thank you.

### COMPARISON WITH CORPS OF ENGINEERS AND BUREAU OF RECLAMATION

Mr. Williams, the small watershed program is widely compared with the flood control program of the Corps of Engineers and the reclamation program of the Bureau of Reclamation. I would appreciate it if you would insert in the record at this point a comparison of the planning funds appropriated for the three programs the last fiscal year, and this fiscal year, together with the budget recommendations for 1961, with the percentage increase, increases or decreases, that are recommended. Would you insert that in the record at this point? I would appreciate it.

(Information requested follows:)

*Amounts appropriated for planning*

| Agency | Actual 1959 | Estimated 1960 | Estimated 1961 | Percent decrease 1960 to 1961 |
|---|---|---|---|---|
| Bureau of Reclamation: | | | | |
| General investigations | $4,556,000 | $4,668,992 | $4,650,000 | −0.40 |
| Construction and rehabilitation: Missouri River Basin investigations [1] | 821,780 | 866,419 | 716,993 | −17.25 |
| Total | 5,377,780 | 5,535,411 | 5,366,993 | −3.05 |
| Corps of Engineers: General investigations [2] | 10,188,500 | 10,481,250 | 9,500,000 | −9.36 |
| Watershed protection | 4,700,000 | 4,900,000 | 3,500,000 | −28.57 |

[1] Obligations.

[2] The portion of this item that represents appropriations for flood control purposes only are, 1959, $5,991,000; 1960, $5,963,500; and 1961, $5,088,000.

### ACCRUED EXPENDITURE LIMITATION

Mr. NATCHER. One final question, Mr. Williams. I notice that this budget for the watershed protection appropriation has been presented to the Congress on an accrued expenditure basis. Do you propose to establish accrued expenditure limitations within the appropriation for fiscal year 1961 of $37.4 million? Will you explain to the committee the purpose of this limitation, and what your operating difficulties may be, if any, under this limitation?

Mr. WILLIAMS. The limitation on the $37.4 million, I believe the figure is, would probably not be any particular handicap with the funds as contained in the President's budget. However, I would like to have Mr. Dorny, our budget officer, discuss the expenditure limitation in the budget.

Mr. NATCHER. Mr. Williams, right at that point, in addition to answering that question, I am also interested in knowing just what effect might this have on the program if the workload at the field level should exceed the limitation established by Congress, and also, will the establishment of the limitation cause any additional cost to this appropriation to administer it, such as additional accounting people?

Mr. DORNY. Yes. This proviso is tied to the requirement that the Watershed Protection budget be presented on an accrued expenditure basis. This means essentially the cost of services rendered and "work in place." For example, we may enter into a construction agreement with a local organization and obligate funds, but that obligation would not be reflected in this accrued expenditure figure until work was actually done on the land.

If, at June 30, one-half of the construction work under an agreement were completed, the accrued expenditures would reflect one-half of the cost under that construction agreement; the balance would be carried over and reported as an accrued expenditure the next year, thus reflecting completion of the work.

This expenditure limitation is a limitation on services that may be rendered and the amount of construction work that may be done during the year. If everything goes as we have planned it here in the budget, and since we have a 10-percent leeway provided, we would not have any difficulty. However, if a substantial amount of this planned work were to remain uncompleted as of June 30, 1961, and funds available were to remain unobligated because work could not be done as rapidly as we had planned—for example, if weather conditions delay construction or local organizations have difficulty in getting easements or rights-of-way, or other factors should cause serious delay—it would force the accrued expenditure amount over into the next year. To the extent that we had sufficient leeway between the amount estimated and the limitation in the succeeding year, it would not cause us any difficulty. However, if the amount carried over were larger than the leeway in the limitation, it would, in effect, keep us from moving ahead with work beyond the amount of the limitation even though additional funds were available. We could not actually permit contractors to install a greater amount of work than we could do under this expenditure limitation.

There will be some additional cost, of course, but I don't think we could say at this time that we would have to hire a certain number of additional accountants. The Government, as a whole, has been moving toward an accrued expenditure accounting and budget basis as a result of legislation passed by the Congress. Obviously, if we are required to maintain accounts and report on both obligations and accrued expenditures, it involves additional work. It is rather difficult to state how much that would be. It would cause considerable additional work in the field in providing the acounting offices information on construction progress.

Mr. WILLIAMS. I would like to ask Hollis if he has anything further from a program standpoint to add to that?

Mr. H. WILLIAMS. I don't have anything to add. You might ask Carl if anything comes to his mind.

Mr. BROWN. Not having any experience with this yet, I don't believe we are in very good position to add anything.

In principle, however, as I understand the system that is set up here, it would charge off as an accrued expenditure half a dam; our engineers would have to make estimates, for example, if half the earthfill is put in a dam, that half the expenditures had been accrued.

Mr. GRANT. If I may add one comment on Mr. Brown's statement: Actually, the Soil Conservation Service, as provided in its "Watershed Protection Handbook," gets periodically, I think it is monthly, reports from their engineers on the job, which show the amount of work that is completed. These reports are used for making progress payments to the contracting organizations. It is anticipated that, if this limitation is approved, those reports will serve as the basis for determining the accrued expenditures currently.

Mr. DORNY. We are not now getting all such reports monthly at a specifically scheduled date. This occurs only at the end of each fiscal year as far as construction contracts are concerned. We are recording only obligations currently in the accounts. Whether we would have to establish a system eventually of getting special engineering estimates of "work-in-place" at a specific time each month, I don't know. Whether we have to do this depends on how close we get to the limitation. It would be necessary to establish such a control, at least near the end of the year when we know that we are nearing the limitation through evidence from the recorded billings received for work accomplished that was mentioned by Mr. Grant. At the time these bills and engineers' confirmation of work performed are received, a considerable amount of additional construction work may have been done.

Mr. NATCHER. Mr. Chairman, I want to thank Mr. Peterson and Mr. Williams for their fine statements; and to apologize to you and to the other members of the committee for taking so much time. This is an important program, and here we can establish many achievements. Thank you, sir.

(Discussion off the record.)

### SURVEY OF DELAWARE RIVER BASIN

Mr. SANTANGELO. On page 266 of the justification, I note with a good deal of satisfaction something for the State of New York. I note that the Department is cooperating with the Corps of Engineers in a survey and investigation of watershed of the Deleware River in New York, New Jersey, Delaware, Pennsylvania. I also note with a great deal of satisfaction that this project is going to anticipate the need for 100 years beyond my lifetime, and beyond the lifetime of my children.

I would like to know, from either Mr. Peterson or Mr. Williams, how far this survey has gone, and what direction is it taking? I would like amplification as to wither are we going?

Mr. WILLIAMS. I can start the reply on that, and then I will ask Mr. Brown to supplement, because I am sure he is much more familiar with the details than I am.

I am familiar with the fact that in the projection of future land use for the Delaware Basin, the intensity of population increase, and the industrialization, and so forth, is going to bring a terrific demand upon the water supplies of the Delaware River Basin. Actually, the

demands for water, demands for recreation areas, the demands for highways and various other things that are essential to an expanding population are going to be felt very greatly in that area.

Now, as to the degree of completion or how far along we are, Carl, perhaps you can supplement that.

Mr. BROWN. Mr. Santangelo, our investigation which is being carried out in cooperation with the Corps of Engineers will be essentially completed in this fiscal year. We are cooperating with them in estimating the needs for smaller water storage facilities supplementing and complementary to the major river improvements which they are investigating. We are studying the needs for such agricultural improvements as irrigation throughout the basin, and reforestation, and other measures of that kind.

Just when the Army will complete their report, which would incorporate our part of it, I don't believe we have any information on. Our work will be completed this year, essentially.

Mr. WILLIAMS. You may be interested also, Mr. Congressman, that there is some activity on the small watershed work in the State of New York, as indicated on page 247 of the budget. There are three projects in operations. Also, there are several other watersheds that are in the process of planning at the present time, some very promising watersheds.

BUFFALO CREEK WATERSHED

Mr. SANTANGELO. I notice on page 276 of your justifications that you have Buffalo Creek watershed in New York. While it is not anywhere near me—it is about 500 miles from me in New York City—it is still of great concern to me, and I am very pleased to see that, because, frankly, we in the State of New York feel that, maybe erroneously so, that most of the soil conservation projects are going elsewhere throughout the country. I had the great pleasure of making a speech before the ECIC on how a big eastern city Congressman looks at the conservation of water resources and the resources of the United States. One of the things which I stressed in my speech was the important work that this Department is doing with respect to soil conservation and the utilization of water resources. Also the conservation of land through the United States.

I don't know what impression I made, but, after I spoke about 35 or 40 minutes some groups from Oklahoma and Missouri asked me to come down in their area and make the same speech. So perhaps I think I know more than I really think I do.

DELAWARE RIVER BASIN PROGRAM

With respect to the Delaware River Basin, can you tell us how much in funds the Department has expended and how much the Corps of Engineers has expended toward this survey?

Mr. BROWN. On the agricultural phases of this particular survey, Mr. Santangelo, most of the funds were those made available by the Department of the Army through transfers out of the appropriations made for this purpose in the public works appropriation bill. We did, in the first 2 years, make a small expenditure of funds out of the river basin account.

We would be glad to provide those for the record.

Mr. SANTANGELO. Would you provide those for the record? I would appreciate that.

(Information requested follows:)

*Obligations on survey and investigations of Delaware River Basin*

| Fiscal year | Corps of Engineers, Department of the Army | Department of Agriculture | |
|---|---|---|---|
| | | Watershed protection | Reimbursed from Corps of Engineers [1] |
| 1956 | $25,218 | | |
| 1957 | 429,231 | $11,536 | $33,569 |
| 1958 | 475,161 | 3,620 | 78,420 |
| 1959 | 476,532 | | 48,433 |
| 1960 (estimated) | 365,000 | | 6,323 |
| Total | 1,771,142 | 15,156 | 166,745 |

[1] Included in obligations shown for Corps of Engineers.

Mr. SANTANGELO. Mr. Peterson and Mr. Williams, I would like to associate myself with the remarks of my colleagues, with respect to the activities of the Department in connection with the conservation of our natural resources throughout the United States. While we in the large urban areas don't see too much of it, we recognize that without water we would be in a very bad position.

Recently, in Asia, with my colleague, Mr. Andersen, we found out that in the city of Hong Kong that there was a burgeoning population. Because the water supply was so limited the development of the city of Hong Kong has been retarded. One of the shortcomings of that particular territory was the fact that they could use running water only 4 hours per day at stated periods of time. This limit on the use of water made me realize that without water resources and without the use of good water, the potable water that we do have in the City of New York, perhaps we would be just as bad off as the people in Hong Kong.

I would like to add my small voice in the commendation of the Department and the members of the Conservation Service for the kind of work you have been doing to conserve the resources of our country.

Mr. PETERSON. Thank you very much, Mr. Santangelo. We join you in being proud of our Soil Conservation Service.

Mr. SANTANGELO. No further questions.

Mr. WILLIAMS. I should like to add, or just call to your attention, Mr. Congressman, and partly for Mr. Marshall's information, that this Buffalo Creek watershed project which was mentioned on page 276 of the notes, is aimed principally at the reduction of sediment from the watershed that is going into Buffalo Harbor. Already with the work that has been done, the Corps of Engineers has been able to reduce their dredging by more than 50 percent as a result of the work being done on the upper watershed which, of course, is reducing the maintenance and upkeep of that harbor installation. That is in addition to the benefits coming to the landowners who are applying conservation work on the land. I think it is significant, in view of the fact that Congressman Marshall mentioned the Potomac River and its sedi-

mentation problem which, while it is a river instead of harbor, the principle is the same.

There is a very large cost to dredging in the Potomac River to keep it open for vessels.

Mr. SANTANGELO. Of course, the Buffalo area is very happy that they were able to get in the watershed.

Mr. NATCHER. Off the record.

(Discussion off the record.)

### HYDROPONICS AGRICULTURE IN JAPAN

Mr. ANDERSEN. When Mr. Santangelo and Mr. Michel and I were over in Japan this fall, we saw something there very interesting. We saw a practical demonstration of hydroponics agriculture, just outside of Tokyo at Chofu. We saw there a demonstration, gentlemen, that to me has its implications as far as the future welfare of this Nation is concerned. I am thinking ahead, like Mr. Peterson. He has said that—

**By the year 2010, our population will be double what it is today, according to Census Bureau estimates.**

In other words, at that time we will have around 380 million in the United States of America.

Going back to that hydroponics installation we saw there, gentlemen, 5 acres under glass, of one board trench after another. These trenches were filled with gravel, varying sizes. Through that gravel there flowed chemicals which, in turn, were fed in water from great big tanks in the particular area. They had 5 acres, if I recall, under glass, and about another 45 acres of gravel in the fields.

This installation was made in conjunction with our Government to provide clean vegetables for our Armed Forces, both in Japan and in Korea. There we saw huge quantities of splendid looking cabbages, lettuce, celery, anything you could name in the line of vegetables, being produced.

We saw them in all stages from one trench, for example, where there was a group of Japanese women ripping up the cabbages which were ready for harvest. Right following them was another group of men who were doing the tillage work and cleaning up the gravel and getting it ready to produce another crop. And to me it was a revelation. I could foresee the day, unless I am badly mistaken, that that is what we will have to come to in the United States of America, eventually, in finding the productive capacity of our soil to feed our people. I don't know how long it will take. It may be the year 2010 that you mentioned that we will have double the population that we have today, Mr. Peterson. That may be where, at that time, we may seriously consider—and I mentioned it to Congressman Santangelo over there—"Some day, Freddie, you will see these installations on the top of your big buildings in New York City, or you may possibly see them on apartment buildings producing vegetables for your great city of New York, the vegetables created without the aid of a single bit of soil."

There is no soil in that gravel, just the gravel there; it is just for the purpose of holding the roots of the plants and getting them started. The chemicals and the water do the work. That, however, raised in my mind, at least, the sort of thinking of what we might be

up against in the future relative to the soils of this country, their productive capacity. That, gentlemen, is why I personally consider the group of men across from me here today the most important one group facing us all through these hearings: those having to do with the Soil Conservation Service.

I feel that we are dealing here with the future of our children and our grandchildren, whom you mentioned in your message to us yesterday, Mr. Peterson. I feel, going back to that hydroponics illustration, I believe they told us that day that it cost them or the Government of the United States $25,000 per acre, Mr. Marshall, to put that under glass and have it in operation.

In other words, we have better than a million and a half dollars' worth of installation there on that 50-some acres; $25,000 an acre. That shows what may have to be done in the future.

I am just showing that as an extreme example.

Mr. SANTANGELO. I would like to point out, too, Mr. Peterson, that the system of hydroponics there, raising these vegetables and tomatoes, is more effective, they say, than with natural soil. They say it costs less and it takes less time within which to produce it.

However, they say that the risk in producing is greater, because if you don't have the proper composition of chemicals you may spoil and destroy the crop.

But insofar as the cost of it is concerned, after the initial investment, they said it was cheaper to raise vegetables and tomatoes by hydroponics than raising them in natural soil. They can be grown in less time than the legumes and tomatoes that we could produce in the United States.

I would like to state for the record, that I made the qualifying statement that this is so after the original investment.

Dr. KELLOGG. That makes a lot of difference.

Mr. SANTANGELO. That makes a great deal of difference. As you shook your heads in disagreement, I recognized the area of disagreement, and I pointed out that apart from the original investment. But you must consider also that there may be areas of the world in which they don't have the soil, where they have plenty of gravel and stone and where the chemicals are in abundance.

For example, during this last off-season I visited the southern part of Italy and Sicily where they have set up a chemical plant in the city of Priolo. This area is very rocky and gravelly. It occurred to me that they have a shortage of foodstuffs in Italy, and it occurred to me also that it would be an area which could develop the hydroponics system, because they have an abundance of chemicals. They have a plant there which is expanding so rapidly that within the last 3 years the plant has engaged over 1,500 people, where as there was no such employment in the area prior to 3 years ago.

However, in the United States, perhaps this system of hydroponics would be a marginal system to fulfill the needs of a population which is growing.

But in those areas where they don't have soil, and they just have rocky and hilly territories, they could get all the gravel that they would need, and they would have all the chemicals that they would need, and perhaps they could furnish themselves with the necessary foods which they cannot obtain except by imports today, I wanted to make

the record clear that the overall cost in the system of hydroponics is much more expensive than the system of growing our food supply in the soil.

But, taking away that primary cost, I thought that the cost of raising food by the hydroponic system would be less than the cost of raising food in natural soil.

Mr. ANDERSEN. Mr. Santangelo, as I started my discussion aimed at Mr. Peterson eventually, I, of course, referred to this hydroponics installation as an eventuality which might occur in the demand for soils in this country, if the lack of soils in ths country, good soils, becomes so acute that we reach the point where we cannot feed the people that we have. In that case, of course we will go to any expense and installation to secure that food.

### TODAY'S PLANS RELATED TO FUTURE REQUIREMENTS

Now, Mr. Peterson, I agree with you very much when you say this, on page 3:

> It would be patently unwise to wait until the time of need arrives to protect the productive capacity of the land. What we do now may well determine if we can meet the demands of the future.

To me, that statement should be before us every year in the consideration of the Soil Conservation Service, and everything relative to it.

I do not feel that Mr. Natcher had any reason to apologize to the subcommittee for taking up the time that he did this afternoon in consideration of this particular part of our budget because, I repeat, gentlemen, that here we are considering the needs of the future generations, practically the only part in the agricultural appropriation bill that we do consider such needs, and that, to me, is sufficient to take all the time that we might consider necessary to put a good record into these hearings.

Mr. Peterson, I notice from studying your past record that you have been one of the leaders out in your part of the United States of America, in Extension, in Conservation, and everything which might apply to agriculture. I have great respect for your ability.

The question I want to put to you today, Mr. Peterson, is as to whether or not it is not dangerous for this subcommittee and for the Congress to hold the general pattern of budget relative to watershed protection, relative to soil conservation operations, technical assistance and such, at approximately the same level as we had this year.

If we agree to holding that level, we are practically saying that we as a subcommittee do not foresee the need for conserving our soils. I feel that we should not be unwisely concerned about the problem of going above the budget in the agricultural appropriation bill where basic programs are concerned, and make the mistake of not putting the proper amount in there, whatever can be used without waste, considering the availability of technical services. If we permit that, gentlemen, I don't feel that we are upholding our responsibility and I repeat for the record that I believe the group of men in here is representing the most important part of this entire agricultural budget.

So you gentlemen, to me today, represent the future of my two little granddaughters out in San Diego, Calif. Those are the children you talked about, Mr. Peterson, in your report.

I wanted to ask you to elaborate, if you will. I want to give you all the time; you can have half an hour of my time right now, and give me your expressions as to whether you feel this budget is really ample. I would like your personal opinion on the subject, Mr. Peterson. I am going to yield to you now to make a full reply to anything I have said this afternoon.

Mr. PETERSON. Thank you, Mr. Andersen.

As I said in my statement, we regard this as a minimum budget. As I believe is readily apparent to you, I do not sit in a position where I can see the implications of the total budget. Therefore, it is difficult for me to make an appraisal as between the level of this item and the level of other items in the budget.

However, with respect to the importance of several aspects of agricultural activities, I do feel very strongly. I think a study of agricultural production in this country will clearly indicate that we farmed for something in excess of 200 years——

Mr. ANDERSEN. Off the record.

(Discussion off the record.)

Mr. PETERSON. We farmed for something over 200 years. We had a western migration of people. We plowed up virgin prairie. New mechanical techniques of farming came into being. And in all that 200-year period, the productivity per acre increased very little. It was not until about 1940, or just prior thereto, that we began to see some sharp upsurges in output of commodities per productive acre in use.

Of course, the period since that time has been characterized by many changes in agriculture, in the aggregate reflected in a very sharp upturn in output per acre when expressed in terms of meat or fiber, wool and cotton, or in terms of grains or other farm commodities. We have made a number of projections in the Department of Agriculture. Those were made by the best qualified men whom I know in this country, or in the world, to make such projections.

To summarize, those projections say that on the basis of the land used in 1956, and the output from the agricultural plant in use in 1956, that by 1975 we would need, in terms of land, 207 million acres additional in terms of cropland equivalent.

The question immediately arises: Can we provide our needs in that magnitude? I think the answer is quite affirmative, not that the physical area of this nation is going to enlarge one bit, because obviously it isn't, but we do have presently a body of technology which has come out of research, which gives promise of assuring the productivity that we will need by 1975.

In other words, with the technology we presently possess, with that we can anticipate as accruing to us over and above what we now possess, between now and 1975, it is apparent from our projections that our productivity requirements from agriculture can be achieved; and I would like to say at this point that while I, with you, view soil and water conservation as being of tremendous importance, not alone to provide water for agriculture but for the entire Nation—for domestic use, for municipal usages, including waste disposal, sanitation, and the like of that, for industrial use. Water is, in my judgment, the Nation's No. 1 resource problem today.

Now, going beyond 1975 with our projections, we look at the year 2000. By that time we estimate that we will need roughly an addi-

tional 500 million acres of cropland equivalent based on 1956 yields and practices. We do not now foresee the assurance that we will have that productive capacity.

Mr. ANDERSEN. How many acres of cropland do we have today? Will you put that in the record?

Mr. PETERSON. We have in the country based on the 1954 Agricultural Census, about 460 million acres of cropland including 66 million acres of cropland used for pasture.

Mr. ANDERSEN. We will need almost 100 percent additional.

Mr. PETERSON. We have that much cropland today. We are harvesting roughly 333 million acres. Obviously, that cropland is of widely varying degrees of productive capacity. Some of it can have, by the proper use of technology, buttressed by scientific research and extended through education, its productive capacity enhanced. Some of it is of such a physical nature that the opportunity for enhancing its productive capacity is limited. But with that cropland base, and with the projected needs, as our technicians have projected them, I could only draw the personal conclusion that there is not now assurance that we can produce within the framework of our projected needs by the year 2010, which is not very far away, 50 years in fact. To me this means that if you agree with this premise, namely, that technology represented around this table is no better than the basic knowledge which supports it, that sound technology springs from research, from extending the fund of human knowledge, knowing more about plants, soil, chemicals, chemistry, physics, engineering, than we now know; then the only way to improve technology is to extend the fund of scientific knowledge upon which it is based.

This means that research becomes a keystone to the three major forces, in my opinion, in agriculture: research, technology, and education.

I think no one of them is fully competent to get a job done without the other. Each complements and supports the other. New knowledge is of very little value unless it has practical application. Technology, technical service, is intended to take that new knowledge and demonstrate and show the ultimate user how to use it, how to put it together in such combinations that it is useful to the end objective: production.

Education serves a different purpose than technology, but the end result and objective, I think, is quite similar. The two are necessarily closely correlated.

I don't believe we can have or should have enough technicians to get to every individual farmer simultaneously. At the same time, education is a medium which can precede technology and can be supplemented more intensively with technology.

There are some other tools, such as cost-sharing, that can, in my judgment, be justified and are justified.

Mr. ANDERSEN. Let me interrupt, and then I want you to proceed further. I agree absolutely with you when you say that we cannot afford, nor is it good business, to have technicians on hand, ready to service every farmer simultaneously. There is a limit to what we can do.

You say, Mr. Peterson, in all sincerety, and I think you are right, that there is a vital question involved. By the year 2000, for example, when our population is virtually doubled, it will be a question whether

we can feed our own people from the soils of America. If that is the case, I would like you to tell me what would be wrong here in the year 1960 with the Department of Agriculture laying out a program which might assure that by 1975 or 1980 we would have covered practically all of the good soil in America with approved conservation practices, and protected, perhaps, the bulk of the present, existing soils in America with the proper watershed treatment.

Has the Department projected any such plan, in view of the fact that maybe by the year 2000 we cannot feed our own people? Has the Department looked ahead and perhaps laid out a program of conservation to protect the soils we do have, and perhaps do everything we can, say, to call this job, 95 percent complete by the year 1975 or 1980? Has anything like that been advanced?

Mr. PETERSON. There has been no program yet advanced to that effect. I have requested certain of our people in the Department to give me their best judgment of certain steps which they think could be taken as a practical matter, which might come somewhat within the framework of the objective that you disclose. I think it fair to say, Mr. Andersen, that both the public and the private attitudes toward agriculture have been to a very measurable degree preoccupied with the apparent surpluses that now exist of some agricultural commodities. It has long seemed to me that a great effort has been made to reconcile what I think is the irreconcilable; that, as a national policy, we will have an abundance of foodstuffs at all times, with a wide variety of choices to consumers at reasonable prices, and at the same time have some reserve capacity and some carryover supplies together with generally acceptable prices to producers.

I cannot believe that this kind of an objective, if this is a national objective, and I think it is, even though it has not been expressed, will of itself produce prices and income to farmers that will permit them to serve the Nation well and to care for the lands upon which you and I and all of us depend, and upon which our children will depend.

At the same time, I cannot agree, that we have yet discovered a mechanism by which the Nation can pay a reasonable premium, like an insurance premium, for example, to maintain that kind of a condition, and have that premium equitably distributed among farm producers who provide this abundance.

I think that is the objective you have in your thinking. I believe it is the objective that Mr. Marshall has in his thinking. I think all fair people would have that as an objective.

It is regrettable that we have not yet found anywhere, to my knowledge, a mechanism to accomplish that objective if it is, as I really believe, a fair objective.

Having said that, and you asked a specific question with respect to this budget, I could only say to you——

Mr. ANDERSEN. Let me ask the basic question I asked of you: Do you in your personal opinion feel that this budget for soil conservation, in all of its various ramifications, is sufficient to do the job that I am sure the members of this subcommittee and you feel lies ahead of us in the next few years. Will it conserve the soil for future generations?

Mr. PETERSON. I find it extremely difficult to answer that question categorically. I can answer it categorically if you look at this budget

for conservation and things related to it and excluded all other considerations, I would have to say "No, sir." If you look at this budget in relation to some things I know about that I think ought to be done, and this may surprise you, I think that it is a reasonably fair budget. I wouldn't say that it is adequate at all, if you look at it by itself.

For example, let me amplify my meaning a little.

Last March, the Secretary, with administration clearance, sent to the Congress a program for the development of the national forest system. That program, as projected, to cost over and above fiscal 1959 levels of appropriation—I would like to correct this figure for the record—about $2 billion over the 12-year period.

Mr. ANDERSEN. Over the 12-year period?

Mr. PETERSON. The program itself runs for a 40-year period.

Mr. ANDERSEN. That, of course, takes into consideration the fact that the National Treasury is receiving over $100 million a year from forest receipts; is it not?

Mr. PETERSON. Presently, the gross income produced by the national forest system is in the neighborhood of $130 million a year; 25 percent of the receipts are returnable to the counties in which the forests are located, as I think you are aware.

In summary, that program at its latter stages, will return, as I recall the projected figure, better than $200 million a year over and above its annual cost of maintenance. I can see, I think, on the basis of the projections we have made in the Department, to which I have previously alluded, that at some time, and I would estimate it to be about 1980 or perhaps 1985, decision will have to be made as to whether certain acres of land now used for the production of forest products, trees, are to continue in that use or whether the trees are to be removed and the land devoted to production of farm commodities.

We are presently using about 78 cubic feet per capita in this country. I have no reason to believe that our population at the year 2000 would not use a similar amount of wood if it is available at the same price ratio to whatever the price levels are then, as it bears at present.

I would personally dislike to see this kind of a question facing the country.

I would summarize this statement by saying to you and to your colleagues that, in my opinion, the decisions now made with respect to research, upon which sound technology is based, with respect to technical services which we are here discussing in the soil and water conservation field, with respect to education, with respect to the several forestry programs, with respect to cost-sharing as a tool in these programs, I certainly believe will have an impact every year in the future, as far as we can look.

More than that, I don't know that I could say, Mr. Andersen.

Mr. ANDERSEN. Off the record.

(Discussion off the record.)

Mr. ANDERSEN. Now, Mr. Williams, the last 2 weeks or so I have worked upon certain questions that I want to ask for the record here, and as far as I am concerned, if you feel that Mr. Peterson or the budget spokesmen should answer, it is all right with me.

I have a little premise in connection with each one, and I believe that this will add to the record that I am trying to make in behalf of soil conservation here today.

BUDGET FOR SOIL CONSERVATION DISTRICTS

Mr. Williams, the basic services of the Soil Conservation are offered to farmers through local soil conservation districts, which are local units of State government organized at the request of local farmers. The first districts were organized in 1937, 2 years before I came to Congress. Since then, some 2,800 districts have been established.

Some States are 100 percent covered. Other States have a few districts still to be organized. A few States have more than that to go. Minnesota has 81 districts at the present time. There are still 14 counties in Minnesota not organized under soil conservation districts.

It has been a continuing policy of this committee over the years, at least since I have been on it, to supply funds as needed to provide the scientists and technicians needed to staff new soil conservation districts as they have been organized. In past years if the proposed budget estimates did not provide funds to staff new districts, this committee has provided the needed funds, even if we had to go above the budget.

I think this is essential. Otherwise, these new districts would either have to go unstaffed, or the help would have to be taken away from existing districts, and I don't believe in robbing Peter to pay Paul.

My question, Mr. Williams, is this: Does the amount proposed in the budget estimates for next year provide for staffing the new soil conservation districts which will be organized during the coming year?

Mr. WILLIAMS. There is no increase for the new districts provided, as Mr. Peterson indicated in his statement. We would anticipate supplying some services to any districts that have been created.

Mr. ANDERSEN. Do I understand there is no increase whatsoever in the budget for the new districts? How many new districts?

Mr. WILLIAMS. We estimate there will be 20. As I pointed out in my statement, we had estimated for fiscal year 1959 a total of 30. There were actually 55 organized during that period. So it is difficult to know whether the areas will be added to existing districts or will be formed into new districts.

But as nearly as we can estimate, we feel there will be 20 additional next year.

Mr. ANDERSEN. Do you feel, Mr. Williams, that it is fair to have your technicians or your field men go out into an area and to discuss the advisability of forming new districts on the one hand, and then on the other hand the Congress not being in position to put the proper technical assistance in there to really get going? Do you think that is fair?

Mr. WILLIAMS. Actually, Mr. Congressman, the Soil Conservation Service meets with local people on request to discuss district organization, but that leadership is usually taken by the county extension agent, and other people in the county.

Generally speaking, the Extension Service does provide the leadership for the organization and the initial start of districts.

Mr. ANDERSEN. Your men explain to the districts, to those folks, the advantages of forming such districts. They perhaps do not urge it, but they do explain the advantages?

Mr. WILLIAMS. That's right.

Mr. ANDERSEN. Now that the new district has come into being, I will get back to my question: Do you think it is fair that we don't give them the proper technical staff to do the job?

Mr. WILLIAMS. Historically, technicians have been provided for new districts and, of course, one of the problems is that with some 95 percent of the country already organized, that is the farmland, 21 States completely organized now—incidentally, West Virginia just finished its organization 100 percent since the first of January. There are three States in particular, and some others, including Minnesota, that have still some distance to go; that it would mean just as much to the country to organize a district there as it has to the counties that have organized them in the past.

Mr. ANDERSEN. You are not answering my question as to whether you consider it fair. Let me get you off the spot by saying this: Where do you get technical assistance to take care of these districts? I know where you get them, but for the record.

Mr. WILLIAMS. The resources provided by Congress in terms of appropriation to employ the technicians to staff the district.

Mr. ANDERSEN. Certainly, they are spread as efficiently as you can possibly do so over the job you have to do.

Mr. WILLIAMS. We endeavor to do that.

Mr. ANDERSEN. In other words, you come into the old, established district, perhaps have a very thin layer of technical help at this time, and they have to devote a certain amount of their time—it is the sort of a thinning out of the butter process on top to the point where you don't have butter but you have a lot of skim milk on top of the bread; is that it?

You don't have the personnel to do the job, do you?

Mr. WILLIAMS. We have had to spread our personnel thinner. The actual man-years of assistance available to districts has decreased about 50 percent in the last 15 years.

Mr. ANDERSEN. I am bringing up the same point I brought up 10 years ago, and 15 years ago, when I tried in this subcommittee to start a general program of adding $5 million a year to the soil conservation operations for technicians as a program to meet the demand as it came, and to take care of the new districts as they came into being.

I personally am very much disappointed in seeing that in this budget there is not a single dime more for soil conservation operations than last year. I think you will agree with me that the budget does not ask for a dime more for actual soil conservation operations for technical assistance than they did last year, is that correct?

Mr. PETERSON. That's correct, Mr. Andersen. I think it is fair to say that there is, to my personal knowledge, in those States I visited, and I visited a good many of them, a backlog of work which farmers and ranchers are willing to do with their own resources, for which they want technical assistance, which we cannot provide as far as they would like to use it.

Mr. ANDERSEN. That is absolutely correct. I think it is not in the best interest of our Nation that we permit that backlog to continually grow and to exist, but I get back to my original premise, and I hope

to live long enough—but another 15 years from now I hope to see by 1975 or 1980, if I am still around, where we have practically done a 95 percent job as far as conservation in America is concerned, as far as you gentlemen can do it.

I don't think there is any prospect of that. I would have to live to be a hundred years old with this budget, and then I wouldn't see a completed job. I don't expect to live that long. I am being facetious, in a way, Mr. Peterson, but I sincerely feel we are not doing the job—that is, the budget has not done the job.

I would like to pose a question in the record at this point, and then have Mr. Williams reply to it in the record, please.

I am also concerned about the shortage of technical help in soil conservation districts generally. And I have been for some years. I have proposed in the past that this committee set out an organized program over a 4- or 5-year period to meet this problem.

Last year and the year before I proposed that $5 million of additional funds be appropriated to the Soil Conservation Service each year for the next 4 or 5 years with the goal toward supplying, on an average, one additional technician for each soil conservation district.

Here we are again this year with that urgent need still not met. To be sure, we did provide a little extra money last year and the year before. But, it was only a token recognition of the problem and the need. It was hardly enough to pay for the continuing increase and the cost of doing business.

In know in Minnesota that there is a backlog of conservation work in my district. I know this is true in other parts of the country too. Many farmers would move ahead faster with the soil and water conservation work needed on their land if they could get the needed technical help.

The Soil Conservation Service men in my area are doing their level best to help all the farmers who want help. But there is just too much demand for them to get around to everybody.

There are now about 2 million farmers in the United States who are soil conservation district cooperators. There are not nearly enough technicians to get around to that many farmers in a year's time.

I would like to know this: In preparing the budget estimates for next year, how much additional funds did the Soil Conservation Service estimate was needed for services to soil conservation districts on the basis of field workload estimates?

(Information requested follows:)

*Preliminary agency estimate for 1961 for assistance to soil conservation districts and other cooperators*

| | |
|---|---|
| Appropriation base (1960 budget estimate; the 1960 appropriation was $82,322,000) | $81,072,000 |
| 25 soil conservation districts organized in 1960 (funds were provided in the appropriation for 30 new soil conservation districts but a net of 55 new soil conservation districts were organized) | 667,000 |
| 20 new soil conservation districts in 1961 | 553,000 |
| Accelerate soil survey | 1,500,000 |
| Strengthen old soil conservation districts | 5,000,000 |
| Total original estimate | 88,772,000 |
| Adjustments for comparability with 1961 budget estimate: | |
| Employee health benefits costs | +600,000 |
| Lease transfers to GSA | −40,000 |
| Adjusted preliminary estimate | 89,332,000 |

PROGRESS OF SOIL SURVEYS

Mr. ANDERSEN. I would like to ask about the rate of progress in soil surveys. The land capability maps which are furnished to a farmer in developing a conservation program for his farm are based on the soil survey of that land. The land capability concept is, in my judgment, one of the significant contributions that the Soil Conservation Service has made in advancing American agriculture since this program has been in existence. A land capability map shows a farmer how he can use his land within its capability, and treat it according to its need for protection and improvement.

With the population explosion which is confronting this Nation, we need to be giving close attention to the future capacity of agricultural land to produce food. It is forecast that our population will double within 50 years. Our grandchildren will be among those throngs.

In the interest of our grandchildren we need to protect and improve all of our soil resources, as rapidly as possible. Completion of the soil survey is essential to the eventual completion of a conservation program on every farm in the Nation.

I remember a few years ago it was estimated that the soil survey could be completed in a 15-year period. How rapidly is the soil survey progressing?

(The information requested follows:)

PROGRESS OF SOIL SURVEY

In the Water Resources Policy Statement sent by the President to the Congress, January 17, 1956, submitting a report by the Presidential Advisory Committee on Water Resources Policy, dated December 22, 1955, it was recommended in paragraph (f) that: "The nationwide soil classification and mapping program, including publication, should be completed, according to priority of critical need during the next 15 years. This will require an overall acceleration, including State participation, to about twice the current rate."

Funds were not appropriated to carry out this program. The Soil Conservation Service has, however, been able to make some small additional allotments for soil survey work as a part of the technical assistance to soil conservation districts. In addition, State agencies, county governments, and other Federal agencies have made some increases in their contributions to the soil survey work.

During fiscal 1960 it is estimated that Service funds devoted to soil survey work in all its aspects, including publication and investigation as well as field mapping, will amount to about $12 million. In addition, cooperating Federal, State, and local agencies furnished personnel and facilities for this national program in an amount approximating $1.8 million. A considerable portion of these non-Service funds went for special studies and interpretations of soil survey work. Included in them is about $200,000 spent out of funds appropriated to the Forest Service for management of the national forests that were used for cooperative soil mapping within the national forest.

The Service has also been able to bring about some increased efficiency in the conduct of this work so that now we are mapping about 50 million acres annually. At this rate it would probably take about 25 years to complete the more urgently needed surveys and perhaps another 3 or 4 years to complete the less detailed surveys needed of presently unproductive land and to complete the publication of soil surveys of all rural areas.

BUDGET FOR WATERSHED PROTECTION PROJECTS

Mr. ANDERSEN. Now, Mr. Williams and Mr. Peterson, it was very satisfying to me to hear your statements on the progress that has been

made thus far in the small watershed program. We have come a long way in this very worthwhile program since ex-Congressman Clifford Hope and I first visualized the need for the Federal Government to help local people solve their own small watershed problems. You will recall that back in 1953, Mr. Hope, as chairman of the legislative committee, and I, as chairman of this subcommittee, sponsored the original appropriation that authorized the 62, I believe it was, pilot watershed projects which were the forerunners of the present watershed protection and flood prevention projects.

Mr. MARSHALL. I might add that that was a great step forward in the work of conserving our water and soil resources in this country.

Mr. ANDERSEN. Thank you, Mr. Marshall. I want to thank you for what you have done throughout the years in helping us get along the distance that we have.

There is no doubt in my mind that this program will become one of the most significant soil and water resource management programs of our time. The budget information, if I have analyzed it correctly, certainly does not recognize the fact that this is a new and rapidly growing program, and I might state is one of the most favorable programs, gentlemen, as far as the average sentiment in the Congress is concerned. It is a nationwide accepted program, and the average Congressman feels that it is a thing which is really doing the job.

Now, Mr. Williams, could you give us the figures on how much has been or will be available in 1959, first, 1960, secondly, and then in the new budget for 1961, to assist local people in the installation of needed measures on watershed protection projects? Remember, I am using the figure: How much will be available?

Mr. H. WILLIAMS. Mr. Congressman, we had available for fiscal year 1959 approximately $30 million for installation in Public Law 566 projects.

Mr. ANDERSON. $30 million?

Mr. H. WILLIAMS. This fiscal year for installation on Public Law 566, I think approximately $20 million.

Mr. ANDERSEN. For the 1961 budget?

Mr. H. WILLIAMS. There would be available $21.9 million based on an estimated carryover of 2¼ million.

Mr. ANDERSEN. In other words, then, the $21 million is based on an estimated carryover of 2¼ million; so, in reality, you cannot say the full $21 million would be available?

Mr. H. WILLIAMS. That's correct.

Mr. ANDERSEN. In answer to my question, it would be closer to $18.6 million?

Mr. H. WILLIAMS. I believe that's correct.

Mr. ANDERSEN. Now, Mr. Williams, do you feel that we have sufficient money in this particular budget before us to carry this program along, as I am sure you realize is the intent of Congress, to carry it along? Do you feel there is enough money in this budget to do the job?

Mr. WILLIAMS. Certainly, from the standpoint of projects that are proceeding with the planning and with the schedule that has been established, the available funds for 1961, under the proposal, will not keep pace with the rate that local organizations are ready to go forward.

Mr. ANDERSEN. Let me ask Mr. Peterson, please. Mr. Peterson, in other words, here if we accept this budget of 1961, we are slowing down the program, are we not, sir?

Mr. PETERSON. That's correct, Mr. Andersen.

Mr. ANDERSEN. How much did the Department ask of the budget for this year?

Mr. PETERSON. I have to ask Mr. Grant to give us those figures. We see so many figures, that I can't remember them all.

Mr. GRANT. Mr. Andersen, the Department estimate for watershed protection was $27,750,000, the same as the budget estimate.

Mr. ANDERSEN. $27,750,000.

Mr. GRANT. That's right, sir.

Mr. PETERSON. Mr. Andersen, one of the things that has always seemed to me to present some difficulty in connection with budgeting for this program is the fact that as yet there has been no determination at what dollar figure annually this program should level off. As you well understand, each of these projects is in a construction stage for a varying number of years. Thus far, each project, I believe, has been in a construction stage for about 5 or 6 years.

Mr. ANDERSEN. I understand that fully, Mr. Peterson.

Mr. PETERSON. Thus, on a project that cost a Federal contribution of $1 million would use up about $200,000 a year. As you add new projects year after year, the commitments that you have then to carry them on within that time range tend to grow. We have felt, or some of us have felt, that a figure, where this program should level off, if it were established, would have provided a means for orderly planning to get to the level-off figure at which the program would then go on along on a pretty constant basis. I regret that that decision has not been made from a budgetary viewpoint. I think the reason is obvious, but I am of the judgment that we will always have budgetary difficulty, assuming demands on the Federal budget will not grow any smaller, until a conclusion is reached that this program will level off at a fixed figure. It may be anything from $50 million to $100 million; I don't know.

Mr. ANDERSEN. Mr. Grant, in reference to your answer to my previous question, you stated the budget estimate is $27,750,000 for 1961.

Mr. GRANT. That's right, sir.

Mr. ANDERSEN. You do not tell us that you do not have the availability of prior-year funds to the extent that you had last year, do you? In other words, last year at this time we had $10 million in available funds, did we not, to add to the then appropriation?

Mr. GRANT. To the estimate for 1960. That was right; yes, sir.

Mr. ANDERSEN. In other words, we had $32,750,000 as of last July 1st. Going into fiscal 1960. We had $22,750,000 plus—well, not quite, but plus the $9,526,964.

Mr. GRANT. That's correct.

Mr. ANDERSEN. Here, by asking only for $27,750,000, plus availability of only $2,250,000——

Mr. GRANT. Makes a total available of $30 million.

Mr. ANDERSEN. Which is about $2 million at least beneath what we had available last July 1st.

Mr. GRANT. That's correct, sir.

Mr. ANDERSEN. All right, Mr. Peterson; I get back to my remark again. We are slowing up this program, are we not, even in relation to last year?

Mr. PETERSON. The answer to that is, "Yes."

Mr. ANDERSEN. May I ask who is responsible for that decision to begin to slow up this particular program, which I think 90 percent of the Congress is very much in favor of?

Mr. PETERSON. I cannot tell you of my own knowledge where that decision was made.

Mr. ANDERSEN. Thank you, sir.

PROJECTED INCREASED COST OF ACCELERATED PROGRAM

Mr. Williams, with the decreasing funds available for watershed project installation each year, how can it be possible that you are servicing an increasing number of projects each year? You have decreasing funds available. I notice in the budget notes on page 236 that at the end of 1959 there were 180 projects authorized for operations; at the end of 1960 there will be 260; and at the end of 1961 you estimate there will be 310. It is obvious that available funds will have to be spread much thinner among the projects if this schedule is to be maintained.

Can you give us for the record the available amount of money that would be required during 1961 to maintain the schedule that you and the local sponsors have agreed upon, or will have agreed upon, on these 310 projects? Will you also explain to the committee the problems that local sponsoring organizations will encounter if these agreed-upon installation schedules are not substantially adhered to?

But before you answer that, Mr. Peterson——

Mr. PETERSON. I was going to answer your question by saying it is quite apparent——

Mr. ANDERSEN. You are answering the first question?

Mr. PETERSON. Yes. It is quite apparent from the figure before you, and to which you make reference, that if the individual projects are increased in number, and the funds either stay constant or are reduced, that the stretchout in the construction time is the only way you can service each one. In other words, instead of taking 5 years per project, it may be 6 or 7 or 8, whatever the figures come to—or putting additional money in the budget. One of the two.

If the original schedule is to be maintained, the original construction schedule, it would take more funds.

Mr. ANDERSEN. Would it not be the logical thing for the Congress to put additional money into this whole program, so that we can do this as we think it should be done?

Mr. PETERSON. The answer follows from the figures before you. That is a judgment which the Congress will have to express.

Mr. ANDERSEN. I understand that, Mr. Peterson.

Now, Mr. Williams, can you give me that information I asked for, for the record, the availability, the amount of money that would be

required during 1961 to maintain the schedule that we more or less—I, personally—had thought had been agreed upon relative to the 310 projects.

Mr. WILLIAMS. I would like to ask Hollis or Carl to respond to that. I don't have the information before me.

Mr. H. WILLIAMS. Under the budget proposal 164 of the 310 projects would be in construction by the end of the fiscal year 1961, and the rate of construction scheduled in the work plans would require an average of about $194,000 per project, or a total of about $32 million.

In addition, as shown in the budget notes, $5,635,000 would be required to provide advance engineering and technical assistance on the 136 projects not moved into construction. The total of these items would be about $37,635,000.

Mr. ANDERSEN. In other words, if we wanted to maintain this schedule, the entire watershed program, at the rate that the 310 projects are projected today, or in readiness to go, it would take about $37 million in this budget?

Mr. H. WILLIAMS. That's right.

Mr. ANDERSEN. And from a practical viewpoint, due to the difference in lack of available funds, we are requesting $2.4 million less this year than really what the Congress would be asked to provide, or did provide last year; is that correct?

Mr. H. WILLIAMS. Mr. Andersen, I would like to modify my answer: That $37,635,000 would be for construction.

Mr. ANDERSEN. Construction alone, but you did have advance planning in there, did you not, that $5 million?

Mr. H. WILLIAMS. That is over and above the construction cost.

Mr. ANDERSEN. Over and above.

Mr. BROWN. This construction figure would be comparable with the one you referred to in the budget, Mr. Andersen, of $21.9 million.

Mr. ANDERSEN. I see.

Mr. BROWN. Your question was directed toward construction.

Mr. ANDERSEN. Of course, maybe a thing like that would be impractical, impossible, in view of present budgetary considerations, but it just goes to show that I am conservative, very conservative, Mr. Marshall, Mr. Natcher, Mr. Santangelo, and my good friend down here, when I say that there is too little money in this budget for all of this work now for the good of the people of America. That is the point I am trying to drive home, gentlemen. I don't know what the figure would be.

Of course, I would be the last one in Congress to ask that a dime be put in here that we could not spend without waste or without advantage to the people of America. I go back to that Army engineers project. I want to say, Mr. Natcher, that I agree with you that the Army engineers is a fine organization, but I just brought up that example of that $106 million project, benefit to cost ratio of 1.01 toll.

Gentlemen, I just quoted that, not in criticism of the Army engineers at all, but that project for $106 million is before the other

subcommittee on which I serve, and that particular project only has a benefit to cost ratio of 1.01 to 1. In other words, for each dollar expenditure, it will possibly bring back 101 cents to the Treasury. That is very slim figuring. Yet, that is in the budget.

My point in bringing that out, Mr. Peterson, is that I don't want to belabor this, but I do think that the budget is too tight altogether with our soil conservation operations, watershed protection program, with the 11 authorized watersheds. I think the budget is too tight entirely for the good of the Nation, for the good of the people of the Nation in the future.

I don't think we are spending quite enough money for it. I can point out several places in the agricultural budget that I will very gladly trim or help to trim, to find the additional money to put in this section of the bill; and I believe it would meet with the general approval of the average Member of Congress in so doing. I don't believe in overriding the budget, but, at the same time, I do believe the budget is not sacrosanct. I never did consider it so.

I think if we did a proper job, you gentlemen sitting across here, and the vast Soil Conservation Service organization, perhaps we could save a couple of those reservoirs somewhere over the United States of America, and put it to much better use in technical services in watershed protection, and stop that water and soil from coming down from the upper reaches, and keep it up there where it will do some good.

As I told the chairman to begin with, I decided to take a little time here this afternoon to discuss this entire problem, because I think I have across from me a captive audience of some of the best brains in the field.

I also feel that possibly every gentleman across the table from me, or a good part of them, know more of the technogolical aspects of this question and the details of it than I do. But I am just expressing, trying to express my general viewpoint on the subject.

### PROBLEMS AT LOCAL LEVEL RELATED TO FEDERAL FUNDING

Mr. Williams, could you tell me the amount of construction funds—first, let me go back. Did you answer my question as to the problems that local sponsoring organizations will encounter if these agreed-upon installation schedules are not at least substantially adhered to?

Mr. WILLIAMS. Again, Mr. Andersen, I would like to ask Hollis to respond to that.

Mr. H. WILLIAMS. Mr. Andersen, local sponsoring organizations generally fulfill their commitments, such as requirements of easements, as soon as the projects are authorized for operation. In some instances they are doing so even before the planning is completed.

By this I mean that once a tentative plan showing the structural locations has been agreed to, many sponsoring organizations are taking steps to secure the easements for the sites on these structures before the final work plan is developed. Under our present Service

policy, we require that local organizations obtain the easements to the sites before we begin with detailed survey and foundation investigations, and preparing the design.

To obtain revenue to acquire at least a part of the land necessary for easements and rights-of-way, these local organizations have to issue bonds and provide tax arrangements. These commitments must be in advance of the Federal commitments for construction funds. Therefore, the local organizations are placed in somewhat of a difficult position if Federal funds for construction are not available after they have incurred the local expenses. We want to assure you that under the provisions of the budget we do our best to encourage the local organization not to make commitments beyond the funds that are available.

Mr. ANDERSEN. Nevertheless, they are in quite a hole locally, are they not, if, after raising the funds they find that the Federal Government is not able to meet its end of the commitment?

Mr. H. WILLIAMS. It lowers their enthusiasm.

Mr. ANDERSEN. Certainly it lowers their enthusiasm. That is the understatement here this afternoon.

I see enthusiasm in some of these watershed groups fall way off. They say, "What's the use? Nothing is going to occur for 3 or 4 years. Why should we bother now?"

FINANCIAL ASPECTS OF AN AVERAGE WATERSHED PROJECT

Mr. Williams, could you tell us the amount of construction funds obligated on the average watershed project in 1959, and then also the estimated amount you will have available for construction on the average project in 1960 and 1961?

Mr. WILLIAMS. Do you have that figure, too?

Mr. H. WILLIAMS. This will be subject to verification, but I think in 1959 it is $176,514.

We estimate $93,000 to be available in 1960.

Mr. ANDERSEN. $93,000 would be available for 1960 and 1961?

Mr. H. WILLIAMS. That's right. That is assuming that we have the carryover of $2,250,000 into 1961, and an estimated $1 million that will remain unobligated in 1961.

Mr. ANDERSEN. Mr. Peterson, wouldn't you agree with me that those figures, $176,000 available per project for construction in 1959, dropping to $93,000 in 1960 and $93,000 in 1961, don't you think they pretty well tell the story about the availability of funds for this work?

Mr. PETERSON. As I said earlier, Mr. Andersen, the only way to carry projects with funds remaining constant is to stretch out the years that you are engaged in construction. This is obvious from figures which have just been given out.

Mr. ANDERSEN. Let me ask you this: The fact that these watershed projects have been organized all over the Nation shows that this is a very worthwhile program. Don't you think we should show some consideration to those new groups who desperately want to get in now and do the same thing for their watershed? I am sure you do, but I would like your further reaction on the record.

Why should we make it difficult, in other words, for them not to foresee in the near future construction to start upon their particular watershed?

Mr. PETERSON. It is quite apparent that unless the local people thought there was a benefit to be derived from a project, they wouldn't engage in it in the first place. Very obviously they have an enthusiasm, and I have observed it personally in the country, as I am sure you have, and you have seen it at a good many meetings.

Mr. ANDERSEN. I have seen villages and city people say that it is the best thing that ever happened in their particular area for the good of that area

EXAMPLES OF EFFECTIVENESS OF CONSERVATION METHODS

Mr. PETERSON. Mr. Andersen, I was on a watershed just after the drought was broken in Oklahoma. This watershed had very heavy rainfall in a very short period. There was, from my personal observation, no scouring of the stream channel. There was no flooding of fields. The land treatment was quite thoroughly installed. There was little or no visible erosion. The watershed right next door, where no work had been done at all, was exactly the reverse of that. The stream was out of its banks. The channel was scouring. There was erosion on the fields and slopes.

I think anyone who had been out in the country and seen these results of these watershed projects couldn't help but be enthusiastic about them.

Mr. ANDERSEN. Mr. Williams, I believe you were back with me in the area of Marshall, Minn., back in 1956, following the 13-inch rain that we had in that area, the ensuing flood around the Marshall area—I think you will agree with me that your technicians there estimated that due to that one heavy rain we suffered the loss of an enormous amount of money, somewhat in the neighborhood of 10 or 12 million dollars, in the loss of soil alone, due to that particular cloudburst.

Mr. WILLIAMS. I don't recall the exact figure.

Mr. ANDERSEN. I wish you would put the figure in the record, or I will try to correct the figure; but I also want you to verify what Mr. Peterson says. You and I both saw areas there which had been treated in that particular area with conservation methods, terracing, contouring, and such. Those areas showed practically little, if no damage, because of that particular rain. But the areas which had not been treated, gentlemen, that is where that storm took its toll. I am referring to just a small area in the United States of America, where we lost that amount of money in a few hours.

(The information requested follows:)

## Storm of June 16–17, 1957, in Southwestern Minnesota

### INTENSITY OF PRECIPITATION

There were nine U.S. Weather Bureau rainfall gaging stations in the storm area. The official rain gages showed rainfalls for the storm period ranging from 6.08 inches to 8.97 inches. Unofficial reports based on rain gages and bucket surveys kept by farmers and municipalities showed rainfall for the same period up to 11 inches. There was one report of 16 inches near Lake Benton, Minn. The weighted rainfall over the entire area was 6 inches.

### RAINFALL FREQUENCY

Data taken from U.S. Department of Agriculture, Miscellaneous Publication No. 204, "Rainfall Intensity—Frequency Data," by David L. Yarnell.

The expected rainfall for 24 hours, occurring once in 100 years is 5.5 inches, with the maximum expected 6-hour rainfall of 8 inches. These are weighted rainfall averages for the entire southwestern Minnesota area.

While no official data on hourly rainfall was available, unofficial observations indicated that most of the rainfall occurred during a 12-hour period the night of June 16. Eight inches fell in the storm center during this 12-hour period. The 12-hour rainfall to be expected once in 100 years is approximately 5.25 inches.

### LOSS OF LIFE

There were six deaths attributed to the storm of which three occurred in Minnesota.

Eleven persons also were hospitalized as the result of a train wreck west of Montevideo, Minn.

### AREA FLOODED

An estimated 322,100 acres suffered inundation damages in an area of 3,402,112 acres. It is about 1½ percent of the total cropland in the State.

### DAMAGE

U.S. Soil Conservation Service technicians in the 10-county area that was hardest hit by the storm of June 16 and 17, have been studying the effects of the storm on farmland and have compiled the following information: One-third of an inch of soil was washed from 1,502,000 acres, totaling 500,666 acre-inches. Two-thirds of an inch of soil was washed from 696,000 acres, totaling 464,000 acre-inches. Five-sixths of an inch of soil was washed from 380,000 acres, totaling 316,665 acre-inches. Total: 1,281,331 acre-inches of soil from fields.

One acre of soil an inch deep weighs approximately 140 tons; thus 140 tons/acre-inch times 1,281,331 acre-inches equals 179,386,340 tons of soil washed from the fields during this storm in the 10 counties affected. This is equivalent to 286 square miles (183,047 acres) 7 inches deep.

### EFFECT OF THE DISTRICT PROGRAM

The four counties which suffered the severest storm—Lyon, Yellow Medicine, Chippewa, and Redwood—all have organized soil conservation districts. Of the 8,438 farms in these four soil conservation districts, 1,854 are cooperating in planning and applying soil conservation plans designed to fit the particular problems and needs of these individual farms.

Even though the soil conservation work on the farms in the storm area was not designed for such a violent storm as hit on June 16, the soil and water conservation practices stood up extremely well.

Conservation measures were very effective in alleviating damages. Contour strip cropping was effective, although some rilling occurred at the lower end of fields where the strips were too wide.

Terraces and diversions reduced rilling almost completely and were very effective in stopping erosion damage, especially where the farmer was using a good crop rotation.

Grass waterways stood up well. Draws that were not grassed cut deeper and gully heads advanced.

Where the corn fields were planted following legume and grass crops, the erosion damage was much less than where the corn followed corn or small grain.

Approximately 100 ponds and detention structures in the Marshall area which were built under SCS specifications withstood the torrential rains without damage. In the Lincoln Soil Conservation District, 20 of the ponds were built this year.

Observations showed that crop damage was reduced where major drainage outlets and on-farm drainage had been properly installed.

Mr. WILLIAMS. I am sure in that particular watershed, Mr. Andersen, if the conservation treatment that is applicable to that particular area had been applied with some upstream engineering devices that a very high percentage of that damage would not have occurred.

Mr. ANDERSEN. That's correct. To me that was the convincing argument, Mr. Marshall, when I noticed the difference between the damage to land which had not had the advantage of conservation practices and the land which had the protection.

Mr. MARSHALL. Amazing what protection will do.

Mr. ANDERSEN. That's right, certainly amazing.

### 1961 BUDGETARY LIMITATIONS ON SCS PROJECTS

Mr. Williams, we have heard a great deal during the past few years about "new starts" and "no new starts" on water resource projects. Will you please state for the record whether the 1961 budget proposals state or imply any rigid limitations on the number of "new starts" that can be made during the year, or place any limitations on the amount of funds that can be expended on projects brought into being during the year.

Very briefly, will you explain what effect these dollar limitations will have on the total program, and on your relations with sponsoring local organizations.

I think on that, if you will place a full response in the record, it may save a little time.

(Information requested follows:)

The fiscal year 1961 budget contains three types of limitations. First, the amount of funds that may be obligated on projects in which construction is begun during the year is limited to $5 million. Second, the estimated total Federal cost of projects on which new construction starts are to be made during fiscal year 1961 is limited to $28,900,000. When new construction starts have been made on projects that involve total Federal commitments of this amount, no further new starts would be made. Based on the average project cost to date, this would permit 32 new starts to be made as compared with the estimated 35 in this fiscal year and 60 in fiscal year 1959. Third, as shown in the budget notes, page 231, under the proposed limitation on accrued expenditures, we could not exceed $37,400,000 in value of installed work during fiscal year 1961. Since we have had no experience thus far with the accrued expenditure method of accounting, we are not in a position to say what effect this would have although it appears to be liberal in relation to the amount of funds provided in the budget.

Mr. ANDERSEN. I noticed in the budget notes that 80 new projects were authorized for operations in 1959, and you expect to get another 80 projects authorized in 1960.

The notes also show that on June 30, 1960, planning will be in process on 196 watersheds, but only 50 watersheds will be authorized for operations in 1961.

Now, this is nearly a 40 percent reduction in number of plans authorized for operations in a year when the program obviously, in my opinion at least, should be expanded. Some places along the line, in 1961, completed plans are going to be arbitrarily held up in

order to reduce the number of projects that get into operation during the year. Are you going to hold them up in the Soil Conservation Service?

After the local people have met all of the requirements of the law and are ready to go, will this be done in the Department or in the Bureau of the Budget? I want to know who to get after.

Mr. WILLIAMS. It is a joint responsibility, I should think, Mr. Andersen. Undoubtedly the Soil Conservation Service would have to discourage the plans from being submitted as rapidly as they might otherwise be.

Mr. ANDERSEN. Have to hold them up because of lack of funds, would you not?

Mr. WILLIAMS. That's correct.

Mr. ANDERSEN. You would have to take the initial jar, so to speak, from the communities back in the hinterlands?

Mr. WILLIAMS. They will automatically look to us, being the ones helping them. That is the situation.

### NEED FOR ACCELERATED PROGRAM

Mr. ANDERSEN. I am going to conclude by just saying this, gentlemen: I have had a purpose in this lengthy discussion this afternoon. I don't know how many years it has been since I have really taken time like this. The first 2 or 3 weeks back, I had my assistant work up an analysis of what we have had before us. I feel now we are more or less, Mr. Peterson—and I in no way hold you responsible—I think if you were sitting here, if you were able to do so, you would be as much with us in this as you possibly could, but I feel that we will not be doing our duty on this subcommittee, gentlemen, if we permit this budget to stand where it is.

I say that in relation to all of the watersheds, the 11 authorized watersheds. I say that in relation to the small watershed protection program, and I say that in relation to the soil conservation operations. I think this subcommittee will be remiss in its duty if it accepts the figures as given in this particular budget.

Now, I am going to yield to any of you gentlemen who want to comment at this point at all on this. Otherwise, I am going to yield to Mr. Marshall, or back to the chairman.

But, first, may I ask if you have any further comment, Mr. Peterson?

Mr. PETERSON. I think not, Mr. Andersen, except to say again that from our side of the table, we do not sit where we have opportunity to look at the total budget situation and the implications which stem from it.

As to the question of protecting the Nation's physical resources, land, I feel very strongly that here is the most challenging job; that the sooner it is done, the better for the welfare of everybody.

Mr. ANDERSEN. I might say in response to that, that we on this subcommittee are, all of us, members of other subcommittees, and in turn all of us are members of the main Appropriations Committee, gentlemen, and we do have the responsibility that you do not have, and that is to look at the entire budget and all of its implications. Consequently, when we argue, when I personally argue for a little increase here, apparently small increase in watershed protection and

soil conservation operations, I personally, if I could do so, would take $50 million right now off of foreign aid in certain phases. I would throw that into soil conservation and watershed operations, and I think our Nation would be far better off.

I am talking about the comparative thing which I would do if I could, but unfortunately none of us can do as we please.

Mr. PETERSON. About the best we can do on this side of the table is to try to point out to you gentlemen the facts as we see them, in response to your interrogations.

As you have already indicated, in my formal statement I tried to say that there were implications in the budget for this purpose, as there are for many purposes, that go beyond the one fiscal year to which the budget applies. You, of course, quickly detected that in the statement I made to you.

Mr. ANDERSEN. I am fully convinced that in these areas to which I made reference—research, technical assistance, education, resource management—that decisions made now do have various far-reaching and long-running effects, so far as the future posture of our country is concerned. And I want to say I am proud of you gentlemen that I have across the table from me. I am proud of our subcommittee, and I think all of us are dedicated to what is best for America. There are differences of opinion. I may be blunt at times, but that is the way I have of expressing myself. I have gotten along pretty well in life by saying what I think. I have got in difficulties occasionally, but I do think and I repeat, as I said to start with, that I think here we are dealing with the most important part of the agricultural budget.

Thank you, Mr. Chairman, for your courtesy, and thank you, Mr. Peterson, Mr. Williams, and your staff, for the courteous way in which you have replied to my questions.

### EXTENT OF FARMLANDS IN SOIL CONSERVATION DISTRICTS

Mr. MICHEL. Mr. Williams, on page 5 of your testimony you have referred to 95 percent of all farms and ranches, and 90 percent of all farmland. Does that mean we have soil conservation districts in that percentage of farms and farmlands throughout the country?

Mr. WILLIAMS. Yes.

Mr. MICHEL. This excludes, of course, Federal land, does it not?

Mr. WILLIAMS. It excludes public land. This would be privately owned farmland.

Mr. MICHEL. How long has this figure of 90 percent and 95 percent prevailed?

Mr. WILLIAMS. It is constantly changing. There were 55 districts organized in fiscal year 1959. There have been a number more this year. We could give the back figures of acreage and so forth by years, if you would be interested.

Mr. MICHEL. For a basis of comparison, 10 years ago, what was roughly the percentage?

Mr. WILLIAMS. I believe I have those figures here by years.

Mr. MICHEL. If it is too difficult, too hard to find at this point, just for my own standpoint I would be interested in learning what the percentage was 10 years ago, and what it was 20 years ago.

Mr. WILLIAMS. I have numbers. It isn't calculated in percentage. We can add the percentage for the record.

In 1950, there were actually 2,285 soil conservation districts as against, roughly, 2,911, I think it is, estimated at the end of fiscal 1961.

Mr. MICHEL. The figure, to me, would mean much more. You can have any number of soil conservation districts, but if we are thinking in terms of covering the entire country, I am more interested in the rate at which we are covering the country; if it was 50 percent 20 years ago, and 75 percent 10 years ago, and we have 90 percent now, then it seems to me that we are getting someplace.

If this thing has leveled off at 90 and 95 percent for the last 5 years, then I would be asking some questions as to why is the program static? Why aren't you moving forward?

But I would be willing to wager, on the basis of the figures, that we are getting somewhere.

Then my next question is: When do we get to that 100 percent?

Mr. WILLIAMS. I don't know, Mr. Michel, actually, if the entire United States will ever be included in the soil conservation districts. I think that there will be some areas that perhaps never will, but we estimate that there will probably be a total maximum of somewhere around 3,000 soil conservation districts. I am assuming certain consolidations, certain ones that perhaps will be divided, and so on. I could provide a table showing by years, beginning in 1938, the first soil conservation district by years up through 1959, the numbers and acreage, the additions, and all that.

Mr. MICHEL. I would be interested in that table.

(The information requested follows:)

*Soil conservation districts and other conservation districts organized each fiscal year to June 30, 1959*

| Fiscal year | Districts organized | | Total area in districts | |
|---|---|---|---|---|
| | For the year | Cumulative total | New districts and additions | Cumulative total |
| | *Number* | *Number* | *Acres* | *Acres* |
| 1938 | 69 | 69 | 36,107,227 | 36,107,227 |
| 1939 | 92 | 161 | 52,338,921 | 88,446,148 |
| 1940 | 153 | 314 | 101,306,249 | 189,752,397 |
| 1941 [1] | 241 | 555 | 145,090,910 | 334,843,307 |
| 1942 | 230 | 785 | 122,726,782 | 457,570,089 |
| 1943 | 116 | 901 | 60,102,000 | 517,672,089 |
| 1944 | 213 | 1,114 | 102,819,108 | 620,491,197 |
| 1945 [2] | 232 | 1,346 | 120,367,596 | 740,858,793 |
| 1946 [2] | 292 | 1,638 | 143,118,697 | 883,977,490 |
| 1947 | 251 | 1,889 | 118,991,097 | 1,002,968,587 |
| 1948 | 144 | 2,033 | 111,034,621 | 1,114,003,208 |
| 1949 | 131 | 2,164 | 64,759,964 | 1,178,763,172 |
| 1950 | 121 | 2,285 | 74,720,754 | 1,253,483,926 |
| 1951 | 88 | 2,373 | 51,626,081 | 1,305,110,007 |
| 1952 | 94 | 2,467 | 53,803,413 | 1,358,913,420 |
| 1953 | 82 | 2,549 | 45,075,362 | 1,403,988,782 |
| 1954 | 69 | 2,618 | 37,506,901 | 1,441,495,683 |
| 1955 | 56 | 2,674 | 43,478,538 | 1,484,974,221 |
| 1956 | 47 | 2,721 | 61,481,835 | 1,546,456,056 |
| 1957 | 49 | 2,770 | 50,535,263 | 1,596,991,319 |
| 1958 | 36 | 2,806 | 36,327,078 | 1,633,318,397 |
| 1959 [4] | 55 | 2,861 | 28,649,887 | 1,661,968,284 |

[1] Includes wind erosion districts and grazing districts for 1941 and subsequent years.
[2] Totals at the end of each year hereafter are net, including corrections and adjustments made during the year.
[3] Includes Imperial Irrigation District, Calif.
[4] Includes Elephant Butte Irrigation District, N. Mex.

### VARIANCE IN ACREAGE AND STAFFING OF DISTRICTS

Mr. MICHEL. How much do these soil conservation districts differ in acreage or in area? What is the difference between the smallest conservation district and the largest?

Mr. WILLIAMS. In Missouri there are a few, four or five, that are only one or two townships in size. That varies to the White Pine District in the State of Nevada, which is the largest one in the United States, which is several million acres in size. It varies in accordance with the type of land, geographic area, degree of settlement, and so on.

Mr. MICHEL. My next question was going to be: How much is involved in the staffing of a soil conservation district, on the strength of the wide difference in size? This obviously would make a difference, then, in the number of personnel and the cost involved in the individual soil conservation districts.

Mr. WILLIAMS. A variation in staffing exists. There are some 300 work unit offices—a work unit is ordinarily the staffing for the individual district—there are some 300 that have only one person. I have some additional information if desired.

Mr. MICHEL. You have a table which would show, then, how many there are that would have one employee, and how many there are that would have two, and so forth?

Mr. WILLIAMS. We have it by States. In 19 States we have an average of 2.9 personnel per district; there are 23 States that have an average of 3 to 4; there are 5 States that have an average of 4.1.

In further breakdown, we have 2,705 work units that have a staff of 5 or less. I think I have it broken down still further here.

Mr. MICHEL. Are these considered to be soil conservation specialists trained in their work, or does this include administrative clerks?

Mr. WILLIAMS. We essentially have no clerks in work unit offices. There are just a few at the work unit office. We keep one or two clerks at an area office. An area office which has supervision of some 10, on the average of about 10 work units. The clerical work essentially is done at the area office. The staffing of the work units would be a work unit conservationist, who is a trained conservationist, and part-time of an engineer, part-time of a soil scientist, a conservationist aid, to help in layout work.

The average staffing, taking the whole United States, dividing the total personnel by the number of districts is 4.04 man-years per soil conservation district. So you have all the way from very light workload to extremely heavy workload, depending upon the size and the intensity of the activity.

### SOIL SURVEY REPORTS

Mr. MICHEL. On page 8 you refer to the published soil survey reports, and in 1958 there were 16, and in 1959 there were 37. What is involved in publishing a soil survey report? In other words, what I would like to get at is, what is the cost, or what would the cost-benefit ratio be? Are you getting as much benefit from what you get out of these reports, or what time it takes to go into formulating a report, or is it just so much paperwork?

Mr. WILLIAMS. I would like to ask Dr. Kellogg to go into some detail on that.

Dr. KELLOGG. In conducting our work in the soil conservation district, we make soil maps on aerial photographs. Until the maps are published, we use photographic copies of such field sheets in our work with farmers. Each farmer is given a copy as a basis for his plans. When a county is finished, the sheets are assembled, usually at a scale of 1:20,000 (or about 3.2 inches to the mile), and published in this form (exhibiting soil survey) along with the descriptions of all the soils, groupings in accordance with their capability, the yield estimates of adapted crops, groupings according to their engineering properties—that is, how far tile would need to be apart for drainage—and so on.

I have here some examples. In the State of Illinois the soil surveys are cooperative between the State agricultural experiment station and our services, but publication is done by the State agricultural experiment station. That is the only State where that is true now. Formerly a few other States published soil surveys. All of the soil survey work is done in cooperation with the State agricultural experiment stations in the various States. In addition, some of the other State departments cooperate with us. For example, in Ohio, the State Department of Natural Resources works with us as well as the State experiment station.

Mr. MICHEL. Who normally would ask for a published soil survey report like this?

Dr. KELLOGG. First of all, these soil surveys are used primarily by farmers or by technicians who work with farmers. In addition, there are a great many other users including engineers, land appraisers, market analysts, agricultural research scientists, extension specialists, and many others. In fact, soil surveys are a standard reference for all people dealing with rural land. These include many Federal and State agencies and many private agencies that operate over wide areas as well as the local residents of the counties covered by an individual soil survey report.

Mr. MICHEL. Do they pay for it?

Dr. KELLOGG. No, these are free; these are distributed partly by Members of Congress. Unhappily you may not be familiar with this arrangement because in Illinois the soil surveys are published by the Illinois State agricultural experiment station.

Mr. MICHEL. The farmer buys it from them?

Dr. KELLOGG. He gets it free from them.

Mr. MICHEL. Who is footing the cost for that?

Dr. KELLOGG. In that case the Illinois State agricultural experiment station.

Mr. MICHEL. With Federal funds?

Dr. KELLOGG. With their own funds.

Here is an example from the State of New York. Throughout the country, we cooperate with the State agricultural experiment stations. They furnish part of the men who develop these maps and who write the soil descriptions, interpret the maps, and so on.

Mr. MICHEL. In my home county we are having a complete tax revision, tax assessing, and they are using as a basis for the reevaluation of all the property these aerial photographs in the composition of soil and potential productivity. Do you know if this is widely used by tax-assessing people?

Dr. KELLOGG. Yes, soil surveys are used quite a bit for tax assessment. In many counties the assessor uses the information in them as a general guide. In a good many counties they have had systematic procedures for calculating relative land quality from the soil data in these reports. These systems make possible comparable assessments according to land quality.

In some counties the assessor's office has furnished funds to help implement this work in order to get the work done quickly for his purpose. Quite a bit of this has been done in Iowa and in North Dakota, for example.

INITIAL AND TOTAL COST OF PUBLIC LAW 566 WATERSHED PROJECTS

Mr. MICHEL. Mr. Williams, on page 13, the budget proposes an increase of $5 million for the fiscal year 1961 to initiate construction of an estimated 32 additional projects involving estimated total Federal cost of $28.9 million.

In other words, $5 million to get it underway; and I suspect a projected cost overall on the strength of the best figures you have available, a total cost of $28.9 million.

Over what period of time would that expenditure be made?

Mr. WILLIAMS. I believe the average life of the project is 6 years.

Mr. H. WILLIAMS. Between 5 and 6.

Mr. MICHEL. It would be an average length of time for all?

Mr. BROWN. Average project period for all the 215 projects now approved is 5.3 years. They vary in length from as short as 1 year to as much as 10 years.

Mr. MICHEL. Not being as well informed as the senior members of the committee, was this a standard practice in prior years? When there was a projected figure of so many new starts, would there be the initial cost figure, and a projected cost of what the overall figure might be?

Mr. GRANT. With respect to watershed protection item, Mr. Michel, there has not been a proposal precisely like this one. This program is relatively new. It is just now beginning to pick up impetus. Last year there was a different kind of limitation; namely, a limitation on the number of projects which could be initiated. For a number of years the estimates have included an estimate of the total cost of completing projects underway and anticipated to be underway in the budget year.

In the case of the 11 authorized watersheds, under the "Flood prevention" item, the justifications have carried for 10 years or more the estimate of the total cost of the projects.

Mr. MICHEL. Do you know offhand if the actual cost then has pretty well coincided with the estimate of projected figures?

Mr. GRANT. No, cost estimates have changed for various reasons. You will find, if you compare the present estimated cost of the 11 watersheds with the estimated cost at the time they were originally established and approved back in 1944, that there has been a substantial rise in cost.

Mr. MICHEL. How much were those estimates off?

Mr. GRANT. I don't have those figures here. The general rise in cost levels has been a very significant factor. Also, in the intervening

years the soil problems have changed to some extent so that it has been necessary to modify the kinds of measures needed.

Mr. MICHEL. Probably without exception the estimates have been low.

Mr. GRANT. I think that would be the case, yes.

Mr. WILLIAMS. I might comment further, Mr. Michel, that if you multiply 1945 prices by the inflation that has taken place, you won't miss the estimated cost very far. That is the major factor.

Mr. MICHEL. On page 15, "Flood prevention." As I recall, last year you asked for the same amount you are asking for this year, but the Congress beefed it up by $3 million. Is that correct?

Mr. WILLIAMS. That's correct.

Mr. MICHEL. What did you do with the $3 million?

Mr. WILLIAMS. That $3 million was distributed among the 11 projects on the basis of readiness to proceed with the work in accordance with the schedules that we submitted back to the committee.

Mr. MICHEL. Has it all been utilized or obligated?

Mr. WILLIAMS. We estimate there will be no significant carryover at the end of this year in that item.

Mr. MICHEL. Were the funds spent wisely, or would you say in order to comply with the wishes of Congress having voted you the additional funds, you have relaxed your vigilance over the expenditure?

Mr. WILLIAMS. I assure you that there has been no relaxation. The readiness of local people and with available easements and rights-of-way is way beyond $18 million, and they could have efficiently used more money.

In other words, projects were ready even to assume a little more construction. As far as readiness of people is concerned, that's correct.

Mr. MICHEL. Thank you, Mr. Williams, for your answers.

Mr. MARSHALL. Mr. Secretary and Mr. Williams, do you have anything more that you wish to add?

Mr. WILLIAMS. I believe not.

Mr. PETERSON. I think not. Thank you.

Mr. MARSHALL. On behalf of the committee, we wish to thank you for your appearance before this committee. I think the record of this committee stands pretty well, showing our interest in the work of the soil conservation service. All of us have shown interest in it.

I would like to commend you for the work that you have done, and the work that I know you are going to do. I think that you have been doing an outstanding job in conserving the soil and water resources of this country.

Mr. PETERSON. Thank you, Mr. Marshall. I certainly appreciate that statement.

I want to say, if I may, sir, that whatever has been done can be attributed almost completely, aside from the interest and the help and support of this committee, and other Members of this Congress, to a group of people I would like to say are dedicated people, the folks in our Soil Conservation Service.

Mr. MARSHALL. I am inclined to agree.

The committee will be adjourned to 1 o'clock tomorrow.

WEDNESDAY, FEBRUARY 24, 1960.

Mr. WHITTEN. Gentlemen, the committee will come to order, to continue consideration of the Soil Conservation Service.

INTEREST IN AND MANAGEMENT OF DIFFERENT TYPE WATERSHEDS

Mr. HORAN. I will be very brief. I would like to get some comment from Assistant Secretary Peterson regarding a statement on his statement yesterday, on page 4.

Incidentally, I agree with this fully, but I want your comments. I would like you to enlarge it, if you wish; if you don't, say so.

Finally, the watershed approach to conservation problems makes room for everyone who is concerned with soil and water problems within the watershed—municipalities, recreationists, industries, wildlife groups and others, as well as the farmers and ranchers who operate most of the watershed lands.

You are speaking here of the smaller watersheds?

Mr. PETERSON. That's right.

Mr. HORAN. However, doesn't the same broad approach apply to your major watersheds also?

Mr. PETERSON. I think not, Mr. Horan. Largely for the reason that in a major watershed there is usually a diversity of communities, differing farming communities, different and some diverse interests, conflicts over the kind of use to be made of land, for example; and there is not usually the unanimity of local opinion with respect to the larger installations that I believe exist with respect to the smaller installations.

Moreover, there is a very distinctive, or distinct difference between the two, insofar as the Federal Government is concerned. With respect both to the Corps of Engineers and the Bureau of Reclamation, their projects, with the exception of the small reclamation projects, are Federal projects, federally conceived, federally financed, federally constructed.

With respect to the Public Law 566 projects, the small watershed projects, these are initiated by the local people. The Federal Government has no power to initiate. The planning is done only after the local people have initiated and concluded that they want and need a program within their own watershed.

Mr. HORAN. You do not deny, though, do you, Mr. Peterson, that all watersheds require management?

Mr. PETERSON. No; nor did I wish to be construed as saying that the Corps of Engineers projects and the Bureau of Reclamation projects are in any wise unnecessary.

It seems to me that there is a need for both the large type, large river drainage system type of project, and the small projects as well. I think the history of water development in this country has not been as good as it would have been had the several programs developed simultaneously and were, in effect, made complementary each to the other.

Mr. HORAN. Would you say that the creation of a national park in one of our watersheds adds to the ability to manage that watershed better?

Mr. PETERSON. I think this question would have to be answered on the basis of a specific problem at a specific place. I don't think a cate-

goric answer can be made on that question, Mr. Horan, on a general basis.

Ordinarily, a park, whether it be a national park, a State park, or some other type of park, devotes the land area encompassed within the boundaries of such a park to a basic, single use, usually recreation. There are some subsidiary values, to be sure, but the basic use is recreation. It seems to me that from a land management viewpoint, and again speaking generally, that better management can be achieved in the absence of the devotion of a sizable area to that purpose.

Mr. HORAN. You mean, to one purpose?

Mr. PETERSON. To one purpose. And this is not to say, either, that in specific instances that a park, either national or State or otherwise, is not justified because of local situations or national need.

Mr. HORAN. I am not saying that there hasn't been abuses all across the board, but in the protection of our watersheds for the maximum use by all of the people, it is best to coordinate the uses for which those watersheds exist; is that not true?

Mr. PETERSON. That is definitely true. Moreover, as we find out more about the manipulation of surface cover, we find out how to increase the yield of water for usable purposes, how to even out the flow of water during the season of use.

For example, in your country and my country, where we are dependent for much of our water upon snowpack, we have found that by certain manipulation of the surface vegetation, timber cutting, for example, certain pattern of cut, that we are able to retard the rate of melt of the snowpack, and thereby even out the flow of water off of those watershed lands, and avoid the loss of water by its rapid runoff to the sea.

Mr. HORAN. Isn't it true in some instances that the lack of management on the watershed can contribute to too-rapid runoff in the spring. and the consequent flooding?

Mr. PETERSON. I think there are numerous examples of where that has long occurred, and is even now occurring, Mr. Horan.

### PROPRIETY OF PRESERVING WILDERNESS AREA

Mr. HORAN. What I am thinking of, of course, is that we do have a conflict. It is not secret, by any means. We have quite a demand for the creation of a huge 3-million-acre, I believe it is, 3-million-acre wilderness area partly in my district. Of course, some of the people don't even want the lumbermen to come even close to it. I think they are wrong. I think there is resource enough there for everyone to share; and, under proper watershed management, I think everybody can get what he wishes out of the watershed, including water supplies for municipalities.

Mr. PETERSON. I am inclined to share your view, sir. The question with respect to wilderness is not whether there is going to be wilderness, but, rather, how much there is going to be, and what is each wilderness area to encompass.

There are wide-ranging differences of view with respect to these related questions. Some wilderness enthusiasts, and I think many of them, if not most of them, are quite sincere in their views, hold that the wilderness area should be very extensive in size; that they should encompass land areas that have demonstrated their usefulness not only for recreation, but for other purposes.

Through the Forest Service of the Department, we have made a proposal with respect to the boundaries, after extended hearings, of the Glacier Peak wilderness area, for example. I am informed that there is very great interest on behalf of the proponents of the national park in that area, to include a sizable area in a national park. I think the topography and character of the land itself determines, in large measure, its wilderness characteristics.

I believe, with our growing population and growing needs for water, particularly in our country, together with the needs for finding jobs for increasing labor force, that we should not precipitously place in a status from which it is difficult to remove sizable areas of land which have resources, possible of use, to benefit both the question of employment and the users of end products of that employment.

Mr. WHITTEN. Would the gentleman yield to me?

Involved in this difference is this factor to which everyone agrees—the need to keep the wilderness as such. Those that want the large acreages, however, to a great degree, want it to be relatively inaccessible; they want it to be hard to get to the true wilderness.

From listening to testimony back through the years, it would appear to me that it is these lands that surround the real wilderness that many folks want protected without thinking the problem through. If I am any judge, what they are really trying to do is make wilderness inaccessible which will result in less use of it.

I think if the true wilderness were preserved, but other areas were permitted to develop, it would be easier to get to the true places of recreation. That way it would serve a greater number of people than otherwise.

Mr. PETERSON. It is my view, Mr. Whitten, that you have put your finger on a very difficult problem, and on what I believe to be the desires of the wilderness enthusiasts to protect their wilderness from access. I just saw figures yesterday, which were released by the Forest Service, indicating the number of recreation visits on the national forest system last year exceeded 81 million.

The wilderness area under present regulations does not allow the building of roads within it, the installation of public facilities within it, or any other commercial use of the area, outside of the grazing of livestock, and the pack trains that go in with people who wish to hunt or fish in the wilderness area.

A relatively small portion of the total population which engages in outdoor recreation are able to participate in wilderness recreation. I personally think that we should have wilderness. I personally think that the topography of the country will determine where the wilderness is. But, of that we do have, it is my opinion that it should be reasonably accessible to those of the general public who wish to partake of wilderness recreation.

The problem, as you well put it, is not so much one of having or not having wilderness, as it is of what is to be the management programs for the lands immediately surrounding the wilderness area.

Mr. HORAN. That is exactly what I am getting at. I personally would enlarge that to include the management of the actual watershed in its entirety; and in saying "management" I mean the best thinking you can have on this thing, and what ought to be done in order to maintain the sanctity of the watershed, which, of course, gives the municipalities their water supply, and gives the recreationist a chance to enjoy nature under proper supervision.

I think it enables your communities to maintain the security of their industry around there, including lumbering and, of course, it is very vital to us where we have so much hydroelectric power out our way—I just want one more question, Mr. Chairman—you use this, or you conclude this page by saying:

> In short, this program offers a splendid opportunity—the best available to my knowledge—for all interests of a community to work together effectively in planning and carrying out multiple-use projects that recognize all the resource values of the watershed.

I want to ask you a pointed question now: Don't you think that that opens the door to not a small-scale approach to the watershed management, but one involving the State and the Federal Government?

Mr. PETERSON. I think that it does, Mr. Horan. I must say, in all candor, that in my judgment, at least, we have not yet found the most desirable or effective vehicle for that community of interest to be expressed on a very large geographic basis. Part of it, I think, stems from the very nature of the larger projects being solely Federal projects, as I indicated earlier. The fact that these smaller projects must be initiated by the local people, they are compelled to resolve their local differences, if any they have, before they advance their project for approval by the Federal Government as the principal financer of those projects.

Mr. HORAN. Of course, the local interests are sometimes accused of being selfish; sometimes the biggest demand for the creation of a wilderness area can come from 1,000 or 1,500 miles away.

Mr. PETERSON. In fact, this is the case in many instances. There are organized groups, national in character, promoting the idea and the concept of wilderness. I respect those groups.

Mr. HORAN. You have one of the best in the Nation, in Portland, the Mazama Club.

Mr. PETERSON. The Mazama Club, I think, has taken quite a constructive view toward the whole wilderness question. I know of no one who disagrees with the concept of wilderness. The disagreement, such as it is, and as I understand it comes from the question of how much area should be encompassed within the wilderness designation, and what should be the management plans for the lands contiguous to the boundaries of the wilderness area.

Mr. HORAN. Off the record.

(Discussion off the record.)

Mr. ANDERSEN. Mr. Peterson, I am glad that Mr. Horan has brought up this subject because, as you know, this question interests us in Minnesota also, very much.

Mr. PETERSON. Very definitely, Mr. Andersen.

Mr. ANDERSEN. I think, as you have stated, the problem is: Just what access will the general public have to the wilderness area? Just how far in or just how easy of access will it be to them?

I do want, as I said before, to compliment Mr. Horan for opening up this subject at this point.

Mr. PETERSON. Insofar as the wilderness concept is concerned, if that concept is to be preserved, as I think it should be preserved, then, within the boundaries of the wilderness area, the mode of access, mode of travel, mode of living, cannot violate the wilderness principle.

At the same time, as to those people who wish to avail themselves of wilderness-type recreation, they need to have access to the boundary of the wilderness area.

In my own State of Oregon we had the Three Sisters Wilderness Area boundary question under review, a few years ago. I am quite familiar with the area, and personally visited it before the boundary question was settled, after reviewing the public hearing record. After reviewing those boundaries, I concluded that about 53,000 acres proposed for inclusion within that wilderness area, the Three Sisters, should be excluded because, unless it was excluded, there would be no practicable way for the people who wanted to enjoy wilderness recreation to get access from the western side of that area.

I took a good deal of criticism for it. At the same time, we provided, and we had jurisdiction of the lands, because they were national forest lands, that special management plans should be made for the contiguous area, contiguous to the boundaries of the wilderness area, so as not by their management to violate the wilderness concept that we were trying to maintain on one side of the wilderness boundary.

I would make the same decision again, but I think it illustrates the point that someone made here, that the public which does wish to avail themselves of wilderness recreation must have some means of getting to the wilderness.

52089—60—pt. 1——42

WEDNESDAY, FEBRUARY 24, 1960.

# AGRICULTURAL CONSERVATION PROGRAM SERVICE

## WITNESSES

**ERVIN L. PETERSON, ASSISTANT SECRETARY OF AGRICULTURE**
**PAUL M. KOGER, ADMINISTRATOR, AGRICULTURAL CONSERVATION PROGRAM SERVICE**
**FRED G. RITCHIE, DEPUTY ADMINISTRATOR, AGRICULTURAL CONSERVATION PROGRAM SERVICE**
**JAMES M. HUNT, DIRECTOR, PROGRAM ANALYSIS DIVISION, AGRICULTURAL CONSERVATION PROGRAM SERVICE**
**H. LAURENCE MANWARING, DEPUTY ADMINISTRATOR, PRODUCTION ADJUSTMENT, COMMODITY STABILIZATION SERVICE**
**HARRY B. WIRIN, DIRECTOR, BUDGET DIVISION, COMMODITY STABILIZATION SERVICE**
**CHARLES L. GRANT, DIRECTOR OF FINANCE AND BUDGET OFFICER, DEPARTMENT OF AGRICULTURE**

*Program and financing*

| | 1959 actual | 1960 estimate | 1961 estimate |
|---|---|---|---|
| Program by activities: | | | |
| Direct costs: | | | |
| 1. Cost-sharing assistance to farmers | $212,572,505 | $212,000,000 | $211,800,000 |
| 2. Repayment of loans from Commodity Credit Corporation | 22,501,619 | 29,500,759 | 30,800,000 |
| 3. Adjustment of prior year costs | −164,233 | | |
| Total direct costs [1] | 234,909,891 | 241,500,759 | 242,600,000 |
| 4. Relation of costs to obligations: | | | |
| Obligations incurred for costs of other years, net | 90,969 | | |
| Total direct obligations | 235,000,860 | 241,500,759 | 242,600,000 |
| Costs and obligations from amounts advanced by Commodity Credit Corporation: Cost-sharing assistance to farmers | 40,000,000 | 38,200,000 | 19,200,000 |
| Reimbursable costs—obligations: Cost-sharing assistance to farmers | 444,000 | 444,000 | 444,000 |
| Total program (obligations) | 275,444,860 | 280,144,759 | 262,244,000 |
| Financing: | | | |
| Unobligated balance brought forward | −1,619 | −759 | |
| Advances and reimbursements from— | | | |
| Commodity Credit Corporation (loan) | −40,000,000 | −38,200,000 | −19,200,000 |
| Other accounts | −100,000 | −140,000 | −140,000 |
| Non-Federal sources | −344,000 | −304,000 | −304,000 |
| Unobligated balance carried forward | 759 | | |
| Appropriation (new obligational authority) | 235,000,000 | 241,500,000 | 242,600,000 |

[1] Includes capital outlay as follows: June 30, 1959, $11,100; 1960, $10,000; 1961, $10,000.

NOTE.—Reimbursements from non-Federal sources above are from proceeds of sale of aerial photographs (7 U.S.C. 1387).

## *Object classification*

| | 1959 actual | 1960 estimate | 1961 estimate |
|---|---|---|---|
| AGRICULTURAL CONSERVATION PROGRAM SERVICE | | | |
| Total number of permanent positions | 64 | 68 | 67 |
| Full-time equivalent of all other positions | 1 | 1 | 1 |
| Average number of all employees | 62 | 66 | 66 |
| Number of employees at end of year | 68 | 71 | 70 |
| Average GS grade and salary | 7.9 $6,806 | 7.9 $6,779 | 7.9 $6,812 |
| Direct obligations: | | | |
| 01 Personal services: | | | |
| Permanent positions | $427,384 | $444,594 | $443,718 |
| Positions other than permanent | 3,343 | 3,232 | 3,240 |
| Other personal services | 1,644 | 3,419 | 1,708 |
| Total personal services | 432,371 | 451,245 | 448,666 |
| 02 Travel | 30,842 | 42,000 | 42,000 |
| 03 Transportation of things | 2,774 | 2,000 | 2,000 |
| 04 Communication services | 7,526 | 7,500 | 7,500 |
| 06 Printing and reproduction | 15,987 | 10,000 | 10,000 |
| 07 Other contractual services | 1,404 | 1,466 | 5,582 |
| Advanced to "Administrative expenses, sec. 392, Agricultural Adjustment Act of 1938" (7 U.S.C. 1392) | 23,445 | 23,655 | 23,655 |
| Services performed by other agencies | 8,659 | 6,000 | 6,000 |
| 08 Supplies and materials | 6,537 | 6,100 | 6,163 |
| 09 Equipment | 6,476 | 2,000 | 2,000 |
| 11 Grants, subsidies, and contributions | 27,283 | 29,331 | 29,163 |
| Cost-sharing assistance | 208,685,472 | 213,584,834 | 214,684,075 |
| 13 Refunds, awards, and indemnities | 400 | | |
| 15 Taxes and assessments | 313 | 328 | 328 |
| Total direct obligations | 209,249,489 | 214,166,459 | 215,267,132 |
| Reimbursable obligations: | | | |
| 11 Grants, subsidies, and contributions | 40,444,000 | 38,644,000 | 19,644,000 |
| Total, Agricultural Conservation Program Service | 249,693,489 | 252,810,459 | 234,911,132 |
| ALLOTMENT ACCOUNTS | | | |
| Total number of permanent positions | 128 | 128 | 128 |
| Full-time equivalent of all other positions | 5 | 5 | 5 |
| Average number of all employees | 122 | 123 | 123 |
| Number of employees at end of year | 131 | 131 | 131 |
| Average GS grade and salary | 6.2 $5,365 | 6.0 $5,347 | 6.1 $5,400 |
| 01 Personal services: | | | |
| Permanent positions | $582,395 | $586,981 | $590,337 |
| Positions other than permanent | 16,477 | 13,414 | 13,289 |
| Other personal services | 3,987 | 5,718 | 3,536 |
| Total personal services | 602,859 | 606,113 | 607,162 |
| 02 Travel | 12,453 | 15,300 | 15,300 |
| 03 Transportation of things | 16,946 | 13,100 | 13,100 |
| 04 Communication services | 4,983 | 5,540 | 5,480 |
| 05 Rents and utility services | 15,990 | 27,102 | 27,102 |
| 06 Printing and reproduction | 1,613 | 1,550 | 1,550 |
| 07 Other contractual services | 308,778 | 327,382 | 329,690 |
| Advanced to— | | | |
| "Administrative expenses, sec. 392, Agricultural Adjustment Act of 1938" (7 U.S.C. 1392) | 4,790,014 | 4,825,084 | 4,858,276 |
| "Local administration, sec. 388, Agricultural Adjustment Act of 1938" (7 U.S.C. 1388) | 19,753,361 | 21,295,131 | 21,259,777 |
| Services performed by other agencies | 10,954 | 11,700 | 11,700 |
| 08 Supplies and materials | 167,230 | 159,217 | 158,400 |
| 09 Equipment | 9,050 | 6,700 | 5,200 |
| 11 Grants, subsidies, and contributions | 55,500 | 38,126 | 38,201 |
| 13 Refunds, awards, and indemnities | 1,274 | 1,625 | 1,300 |
| 15 Taxes and assessments | 366 | 630 | 630 |
| Total, allotment accounts | 25,751,371 | 27,334,300 | 27,332,868 |
| Total obligations | 275,444,860 | 280,144,759 | 262,244,000 |
| Obligations are distributed as follows: | | | |
| Agricultural Conservation Program Service | $249,693,489 | $252,810,459 | $234,911,132 |
| Commodity Stabilization Service | 25,621,750 | 27,203,190 | 27,201,028 |
| Forest Service | 129,621 | 131,110 | 131,840 |

## JUSTIFICATION OF THE ESTIMATES

Mr. WHITTEN. We come now to the agricultural conservation program. I would like to insert at this point in the record pages 315 through 318, and 322 through 329 of the justifications, volume 1.

(The pages referred to follow:)

### PURPOSE STATEMENT

The Agricultural Conservation Program Service has the primary responsibility for the administration of the agricultural conservation program authorized by the provisions of sections 7 to 16(a) inclusive, and section 17 of the Soil Conservation and Domestic Allotment Act, as amended; and the emergency conservation measures authorized by the Third Supplemental Appropriation Act of 1957 and the Supplemental Appropriation Acts of 1958 and 1959. It determines the conditions under which public sharing of farmers' conservation costs is needed and justified to protect the Nation's interest in preserving agricultural land and water resources. It also determines the extent to which such cost sharing should be offered, how, when and where it will be accomplished and whether the results are in accord with sound public policy. In making these determinations, State and county ACP development groups are asked for recommendations which are given full consideration.

The Service administers the following programs:

1. *Agricultural conservation program*

To achieve the objectives of this program which include (1) restoring and improving soil fertility, (2) reducing erosion caused by wind and water, and (3) conserving water on land, the Agricultural Conservation Program Service offers cost-sharing assistance to individual farmers and ranchers in the 50 States, Puerto Rico and the Virgin Islands for carrying out approved soil building and soil and water conserving practices on their farms. This assistance represents only a part of the cost of performing the practice. The farmer bears the balance of the cost and in addition supplies labor and management necessary to carry out the practice. Allocations are made to States based upon conservation needs.

Cost sharing assistance is offered only for the soil, water, and woodland conservation practices considered necessary to meet the most urgently needed conservation problems of the farm, which would not otherwise be carried out to the extent needed. To be eligible for cost sharing assistance the farmer must make application therefor before beginning the practice.

Conservation measures for which cost sharing assistance is offered, include practices primarily for:

(*a*) Establishment of permanent protective cover.
(*b*) Improvement and protection of established vegetative cover.
(*c*) Conservation and disposal of water.
(*d*) Establishment of temporary vegetative cover.
(*e*) Temporary protection of soil from wind and water erosion.

Cost sharing assistance is available in the form of—

(*a*) Partial payment of the purchase price of materials and services needed by the farmer for carrying out approved practices, or
(*b*) Partial reimbursement to farmers who have carried out approved practices at their own expense.

Materials and services are obtained through local private sources where practicable. Rates of assistance vary by practices and by States and areas so as to make the most effective use of available funds.

2. *Emergency conservation measures*

The objective of this program is to restore to normal agricultural use farmlands which have been damaged by wind erosion, hurricanes, floods, or other natural disasters. To this end, farmers are offered cost sharing assistance for carrying out approved practices. Assistance is given only when new conservation problems are created which—

(*a*) If not treated will impair or endanger the land.
(*b*) Materially affect the productive capacity of the land.
(*c*) Represent damage which is unusual in character and except for wind erosion, is not the type which would recur frequently in the same area.
(*d*) Will be so costly to rehabilitate that Federal assistance is or will be required to return the land to productive agricultural use.

*3. Work performed for other Department agencies is as follows:*

(*a*) *Conservation Reserve Program.*—The ACPS assists in developing operating procedures relating to conservation measures and cost-share rates. It assembles, compiles and reviews statistics with respect to conservation measures carried out under the program, which is administered by the Commodity Stabilization Service.

(*b*) *Great Plains Conservation Program.*—The ACPS, with other agencies, assists in developing and reviewing policies and general operating procedures for this program, which is administered by the Soil Conservation Service. The ACPS provides leadership in developing and recommending a national list of conservation practices for cost sharing eligibility, and reviews and makes recommandations on State practices.

These foregoing responsibilities are discharged by a small staff organization working largely through and with other Federal, State, and local agencies concerned with conservation, particularly those in the fields of research, education, technical servicing and credit.

As of November 30, 1959, the ACPS had 62 full-time employees and 1 part-time employee, all of whom were located in Washington, D.C.

| | Appropriated 1960 | Budget estimate 1961 |
|---|---|---|
| Agricultural conservation program | $241,500,000 | $242,600,000 |
| Emergency conservation measures [1] | | |

[1] Balance in appropriation is $15,856,254 at end of fiscal year 1959 and is estimated at $10,856,254 at end of fiscal year 1960. Obligations are estimated at $5,000,000 in each of the fiscal years 1960 and 1961.

*Agricultural conservation program*

| | On direct appropriation basis | On program authorization basis |
|---|---|---|
| Appropriation Act, 1960 and base for 1961 | $241,500,000 | $250,000,000 |
| Budget estimate, 1961 | 242,600,000 | 100,000,000 |
| Increase or decrease | +1,100,000 | −150,000,000 |

INCREASE, 1961 (ON BASIS OF DIRECT APPROPRIATION)

***Cost-sharing assistance to farmers for carrying out a $250 million 1960 agricultural conservation program as authorized by Congress, +$1,000,000***

The agricultural conservation program is operated on a program or crop-year basis and cost-sharing assistance is earned by farmers upon completion of approved measures. Funds for cash payments earned under the 1959 agricultural conservation program, which closes on December 31, 1959, were made available in the Department of Agriculture and Farm Credit Administration Appropriation Act, 1960. In that act, the Congress also authorized the formulation and administration of a $250 million program for 1960 for which this estimate is submitted.

*Project statement (on basis of program authorization)*

| Project | Appropriation, 1959 (1958 program) (actual) | Appropriation, 1960 (1959 program) (estimate) | Increase (+) or decrease (−) | Appropriation, 1961 (1960 program) (estimate) |
|---|---|---|---|---|
| 1. Cost-sharing assistance to farmers | $216,266,677 | $222,170,605 | | $222,170,605 |
| Other program expenses | 1,528,445 | 1,440,445 | | 1,440,445 |
| Total program expenses | 217,795,122 | 223,611,050 | | 223,611,050 |
| 2. Operating expenses: | | | | |
| County expenses (sec. 388): | | | | |
| ASC county committees | 19,753,361 | 21,295,131 | −$35,354 | 21,259,777 |
| Forest Service | 112,989 | 113,619 | +654 | 114,273 |
| Total county committee expenses | 19,866,350 | 21,408,750 | −34,700 | 21,374,050 |
| National and State office expenses (sec. 392): | | | | |
| Agricultural Conservation Program Service | 564,017 | 581,625 | +1,432 | 583,057 |
| National and State offices (CSS) | 4,790,014 | 4,825,084 | +33,192 | 4,858,276 |
| Forest Service | 16,632 | 17,491 | +76 | 17,567 |
| Total National and State office expenses | 5,370,663 | 5,424,200 | +34,700 | 5,458,900 |
| Total operating expenses | 25,237,013 | 26,832,950 | | 26,832,950 |
| Total employee health benefit costs (Public Law 86-382) | | | (+44,150) | (44,150) |
| Total obligations | [1] 243,032,135 | 250,444,000 | | 250,444,000 |
| Adjustments: | | | | |
| Difference in amount used for purchase of conservation materials and services from prior fiscal year appropriation for current program and amount used for such purchases from current fiscal year | +3,048,386 | +200,000 | −19,200,000 | −19,000,000 |
| Reimbursements from sale of aerial photographs | −444,000 | −444,000 | | −444,000 |
| Received by loan from CCC | −40,000,000 | −38,200,000 | +19,000,000 | −19,200,000 |
| Repayment of loan from CCC | +22,500,000 | +29,500,000 | +1,300,000 | +30,800,000 |
| Available for repayment of loan from CCC | +6,863,479 | | | |
| Appropriation or estimate | 235,000,000 | 241,500,000 | +1,100,000 | 242,600,000 |

[1] Total direct applied costs were $234,909,891 in fiscal year 1959. This amount is not directly reconcilable to the obligations shown above, which, for program payments, relate to the program year rather than the fiscal year.

STATUS OF PROGRAM

*Conservation is everybody's business.*

Enough good agricultural soil and water is essential to every citizen in our expanding population and economy, now and in the future. The food, fiber, and shelter that our farms produce—about 70 percent of the raw produce in our economy—provide not only most of the essentials for the living of all our people but also a major part of the business and commerce that furnishes the livelihood for the Nation's nonfarm population. Because of their interest in food, fiber, and shelter and the continued healthy economy, nonfarm people have perhaps an even greater interest in conservation of soil and water resources than farmers themselves.

*Conservation costs before it pays*

Farm practices that conserve agricultural soil and water resources are costly. They require an initial outlay of capital to install and many of them result in a reduction in farm income and an increase in the amount of expenditures for farm operations. In the past few years the economic phase of conservation work has been receiving increased attention. Several recent studies have revealed some of the reasons why farmers are often reluctant to adopt conservation systems of farming, even though it is recognized that such a system will eventually result in increased farm income. These studies show that in addition to the substantial initial investment, there is usually a loss of immediate income when a conservation system of farming is adopted. They also show that returns which can be expected from some types of needed conservation measures (for

example, terrace systems, erosion control structures, and certain forestry improvement measures) will not equal their cost for a long time even though they may be necessary to prevent irreparable loss of soil resources and to insure vital water resources and supplies. It is shown that there are greater risks in some types of needed work (such as contour farming or the establishment of soil-saving cover in some areas) than farmers and lenders are generally willing to assume.

*Farmers and the public join their resources*

Because of their inseparable interests and mutual interdependence, farmers and the public have recognized the necessity of jointly bringing their resources to bear on problems in the field of soil, water, and woodland conservation. Federal and State Governments have sought and continue to seek the best methods of expressing this essential partnership. Research and experimental work have developed and are developing means by which soil and water resources can be conserved. Educational work is teaching the value of and need for conservation effort. Technical services help determine the conservation measures that are needed and furnish engineering and other professional assistance to correctly install them. Federal cost-sharing by the agricultural conservation program and similar public efforts for special situations help overcome the economic barriers to carrying out conservation measures. The basic purpose of the agricultural conservation program is to afford a means by which all the people may bear a part of the costs of those measures that would not otherwise be carried out at the rate needed to meet the public interest. It assists farmers to protect the public's interest in the Nation's soil and water resources by sharing with individual farmers and ranchers the cost of carrying out soil-building and soil-and-water-conserving practices more rapidly and to a fuller extent than would be practicable through usual farm management practices. The program, which is applicable to all farmland except some federally administered noncropland, helps insure continued abundant production for all of the people of the country.

*The program is developed by local people*

Development of the agricultural conservation program begins at the local or county level. The agricultural stabilization and conservation county committee, with the assistance of the county extension agent and representatives of the Soil Conservation Service, Forest Service, and other local agencies interested in conservation, make recommendations to the State ACP development group. These recommendations are used as the basis to formulate joint recommendations of the agencies interested in conservation to the Agricultural Conservation Program Service in Washington.

From these recommendations, the Agricultural Conservation Program Service, the Commodity Stabilization Service, Soil Conservation Services, and Forest Service develop and recommend to the Secretary a national program. State and county committees then developed their programs within the structure of the national program authorized by the Congress and approved by the Secretary.

*The program is administered locally*

The agricultural conservation program is administered locally by agricultural stabilization and conservation county committees which are composed of resident farmers elected by farmers they serve. County committees are supervised by agricultural stabilization and conservation State committees composed of resident farmers appointed by the Secretary of Agriculture. The local county agent is ex officio a member of the county committee and the State director of extension holds a like position on the State committee.

State, county, and community committeemen are assigned the responsibility for the field administration of the program and work directly with farmers in utilizing program assistance in an effort to get the greatest volume of conservation performed on the land by the farmers themselves. The responsibility for technical determinations in the field regarding designated permanent type practices is assigned to the Soil Conservation Service, except for forestry practices, for which responsibility is assigned to the Forest Service.

*1959 program again emphasized conservation in land-use adjustments and land treatment conservation measures within watersheds*

The Department carried out the 1959 agricultural conservation program consistent with the authorization contained in the Department of Agriculture and Farm Credit Administration Appropriation Act, 1959. The Department continued the policy of directing program emphasis toward but not limiting assistance

to, enduring practices which are essential in the public interest and which farmers or ranchers would not carry out to the desired extent with their own resources, and to practices needed to meet the conservation problems on land being shifted out of production.

To illustrate the function and economic effect of the agricultural conservation program in land-use adjustment, the program has shared the cost with farmers on establishing about 22 million acres of vegetative cover, including tree cover, during the 5 years 1954–58. A high percentage of this land was cropland producing at an intensive level.

Also, the agricultural conservation program has been instrumental in furthering the objectives and accomplishments of authorized watershed programs. For example, during the past years, 1955–58, over $29 million of ACP funds were used to share costs of the land treatment conservation measures within the boundaries of the 11 approved flood prevention watersheds, 55 pilot watersheds in which operations are being conducted under Public Law 46, and watersheds authorized for operations under Public Law 566. These costs were shared on from about 34,000 farms in 1955 to about 40,000 in 1958. In the case of the Public Law 566 watersheds included in these data, the number of watersheds increased from 32 (with 908 farms participating in ACP) in 1955 to 124 (with 8,492 farms participating in ACP) in 1958.

States were authorized to operate the 1959 program concurrently with the 1958 program in the fall of 1958. Under concurrent programs, State programs for 2 different years are in operation during the overlapping period of time authorized by the Congress and during which practices performed are eligible for cost sharing under either program but not both programs.

*The program for 1960*

The 1960 program is the same as the 1959 national agricultural conservation program, except for changes made for clarification of program provisions or to permit increased operating efficiency. Consistent with the provision in the Department of Agriculture and Farm Credit Administration Appropriation Act, 1960, no change has been made in the 1960 national program which will have the effect of restricting eligibility requirements or cost sharing on practices included in either the 1958 or 1959 program. Also 1960 initial county allocations were made in the same proportion as 1958 initial county allocations.

Authority for local development and adaptation of the program continues. There is also encouragement for modifications of regular practices to meet local problems. Under this authority, further emphasis is being given to the development or adaptation of the program to help meet continuing needs for (1) sound land-use adjustment, (2) land treatment measures in special watershed programs, and (3) dealing with special farm problems in depressed agricultural areas. In addition, there is continued the provision for the development of new practices to meet new or unusual conservation problems.

The maximum Federal cost-share limitation remains at $2,500, the same as for 1959.

*The 1958 program accomplished much conservation*

Funds available for program assistance, after estimated costs of administration are deducted from the maximum authorization, are distributed among States in accordance with their conservation needs, except for the minimum allotment provision contained in section 15 of the Soil Conservation and Domestic Allotment Act, as amended. Funds for the naval stores conservation program, cost of aerial photography, program printing, and transfers to the Treasury Department are subtracted from the amount available for program assistance before the conservation needs formula is applied. The amount for naval stores has been determined in the same manner since 1948 and is based on the need for assistance under the naval stores conservation program as related to the total funds available for cost-sharing assistance to farmers.

## PROGRAM DATA

*Participation under the 1958 Agricultural Conservation Program*

| Item | Unit | Total [1] | Participating [1] | Percentage of participation |
|---|---|---|---|---|
| Farms | Number | 5,294,090 | 1,083,706 | 20 |
| Farmland | 1,000 acres | 1,224,629 | 402,214 | 33 |
| Cropland | do | 477,151 | 157,904 | 33 |
| Noncrop pasture and range | do | 551,923 | 181,940 | 33 |

[1] Includes the United States, Puerto Rico, the Virgin Islands, and data relative to the supplementary (emergency) agricultural conservation program. Excludes the naval stores conservation program.

Extent of Selected Conservation Measures Performed Under the 1958 Agricultural Conservation Program and Accomplishments Under the Agricultural Conservation Programs, 1936–58. Includes supplementary (emergency) agricultural conservation programs.

| Practice | Unit | Extent under 1958 program [1] | Total accomplishments 1936–58 |
|---|---|---|---|
| Dams and reservoirs [2] | 1,000 structures. | 62 | 1,580 |
| Standard terraces | 1,000 acres | 856 | 23,893 |
| Diversion and spreader terraces | Mile | 4,826 | 117,447 |
| Permanent sod waterways | 1,000 acres | 49 | 594 |
| Stripcropping | do | 486 | 109,698 |
| Leveling to conserve irrigation water and control erosion | do | 346 | 6,501 |
| Drainage | do | 1,645 | 36,899 |
| Tree planting | do | 324 | 2,273 |
| Timber stand improvement | do | 321 | 1,629 |
| Lining materials applied | do | 16,845 | 391,380 |
| Other vegetative cover | do | 12,662 | 751,744 |
| Control of competitive shrubs on range or pasture | do | 1,494 | 38,377 |

[1] Includes completed measures only.
[2] Includes storage-type structures for erosion control, irrigation water, livestock water.

*Emergency conservation measures—project statement*

| Project | 1959 | 1960 (estimated) | 1961 (estimated) |
|---|---|---|---|
| Emergency cost-sharing assistance to farmers and ranchers | $2,221,495 | $5,000,000 | $5,000,000 |
| Unobligated balance carried forward | 15,856,254 | 10,856,254 | 5,856,254 |
| Unobligated balance brought forward | | −15,856,254 | −10,856,254 |
| Reappropriation | −18,077,749 | | |
| Appropriation or estimate | | | |

*Program for 1960 and 1961*

These funds are available only for the rehabilitation of land damaged by natural disasters. The estimated obligations reflected above of $5 million during each of the fiscal years 1960 and 1961 are, therefore, necessarily tentative, since actual use of the funds will be contingent upon natural disasters and resultant emergency needs which cannot accurately be forecast in advance.

Assistance to farmers is available only when natural disasters create new conservation problems which (1) if not treated, will impair or endanger the land, (2) materially affect the productive capacity of the land, (3) represent damage which is unusual in character and, except for wind erosion, is not the type which would recur frequently in the same area, and (4) will be so costly to rehabilitate that Federal assistance is or will be required to return the land to productive agricultural use.

STATUS OF PROGRAM

Since 1957, the Congress has appropriated a total of $24 million for cost-sharing assistance to farmers for carrying out approved emergency conservation measures. The Second Supplemental Act, 1959, Public Law 85-766, extended the availability of unobligated balances of these funds until expended.

Four conditions are set forth in the Appropriation Act (Public Law 85-58) under which emergency funds may be used to treat new conservation problems created by natural disasters. The problems must be such that (1) if not treated, will impair or endanger the land, (2) they materially affect the land's productive capacity, (3) they represent damage which is unusual in character and, except for wind erosion, is not the type which would recur frequently in the same area, and (4) they will be so costly to rehabilitate the land that Federal assistance is or will be required to return the land to productive agricultural use.

Designation of eligible areas and allocation of emergency funds are made by the Secretary of Agriculture based upon recommendations submitted through USDA State and County Disaster Committees and upon other available information, including findings and recommendations of the USDA (national) Disaster Committee.

Cost-sharing assistance under the 1957, 1958, and 1959 programs has been authorized primarily for rehabilitating farmlands damaged by flood. Assistance has been provided for the following types of work:

1. Rehabilitating farmlands which, as a result of floodwaters, have suffered major damage such as deep gullying; heavy deposits of sand, gravel, or other debris; severe scouring by floodwater; streambank erosion; formation of potholes; damage to dams, dikes, and ditches.

2. Rehabilitating existing draining or irrigation systems damaged by floodwaters by removing heavy deposits of silt or other material essential to restoring the system to an operating condition where farmlands served by the system could not otherwise be put to normal agricultural use.

3. Removing water from land where a serious drainage problem exists as a result of flood and involving restoration of the land to its normal agricultural use by installing new drains.

4. Restoring terraces, farm ponds, and erosion control structures damaged by excessive rains or runoff.

The statement below shows, by State, the number of designated disaster counties and the amounts allocated for cost-sharing assistance.

*Allocations as of November 30, 1959*

| State | 1957 program | | 1958 program | | 1959 program | |
|---|---|---|---|---|---|---|
| | Counties designated (number) | Allocation [1] | Counties designated (number) | Allocation [1] | Counties designated (number) | Allocation [1] |
| Alaska | | | 1 | $30,000 | | |
| Arkansas | 19 | $36,863 | 19 | 206,701 | | |
| Indiana | 12 | 51,213 | 12 | 192,070 | 15 | $231,000 |
| Kansas | 2 | 4,135 | 2 | 13,441 | 1 | 25,000 |
| Kentucky | 31 | 33,538 | 31 | 465,000 | | |
| Louisiana | 7 | 6,893 | 7 | 116,365 | | |
| Minnesota | 9 | 10,330 | 9 | | | |
| Missouri | 21 | 302,608 | 21 | 845,407 | 24 | 1,119,000 |
| New Mexico | | | 1 | 48,000 | | |
| Oklahoma | 21 | 226,447 | 21 | 143,571 | | |
| Oregon | 2 | 339,411 | 2 | 127,907 | | |
| Texas | 3 | 23,350 | 31 | 2,034,520 | 4 | 834,000 |
| Washington | | | | | 1 | 75,000 |
| Total | 127 | 1,034,788 | 157 | 4,222,982 | 45 | 2,284,000 |

[1] Adjusted to reflect cost-sharing for practices actually installed.

Mr. WHITTEN. Mr. Peterson, this comes under your overall jurisdiction. Do you have a general statement at this time?

## General Statement

Mr. Peterson. Mr. Chairman and members of the committee, we are glad to discuss with you the budget proposals for the agricultural conservation program for fiscal year 1961, together with proposals for the forward authorization for the program year 1961.

### 1961 APPROPRIATION REQUEST

The proposed 1961 fiscal year appropriation for ACP is $242.6 million. This amount, together with anticipated underearnings of $7.4 million on the 1958 program, is adequate to meet the 1960 program obligation of $250 million. Of this total, $223.2 million is for assistance for program participation and $26.8 million is for program administration, principally through ASC State and county committees.

### ADVANCE AUTHORIZATION 1961

The budget proposes for the 1961 program an advance authorization of $100 million. It is our belief that the conservation measures for which costs would be shared at the recommended level would include those conservation steps, in which there is a visible public interest, which should be taken but for which there is little inducement for farmers to finance from their own funds.

Generally, it is planned to continue for 1961 the basic national agricultural conservation program authorities which have been in effect for several years. We believe that Federal cost-sharing under the 1961 program should be directed toward conservation measures in each county which will contribute to less intensive use of cropland, and that assistance should be curtailed or eliminated for those measures which will contribute to an early increase in production. Regardless of the level of the program authorized by the Congress, we believe that certain changes should be made which, experience indicates, are needed to assure more effective use of program funds.

Mr. Paul Koger will discuss these changes in more detail in his statement. We plan to make no restrictive changes in the 1961 program at the national level other than the ones to be outlined here today.

### SMALL COST SHARE INCREASE PROVISION

The proposed forward authorization for the 1961 program assumes that favorable action will be taken by the Congress to eliminate the small cost-share increase provision which is contained in section 8(e) of the Soil Conservation and Domestic Allotment Act. Legislation in H.R. 6094 is now before the Congress to accomplish this and the Department has reported favorably on its enactment.

Almost without exception State and county farmer committees express to us the opinion that little if any additional conservation is obtained by the payment of these increases which are not directly related to the size of the farm, the financial ability of the farmer, or even the farmer's cost of performing the practice.

For the past several years the amount required for making these additional payments has amounted to about $10 million per year.

STATE ALLOCATIONS

Program funds for 1961 will be distributed among the States on the basis of the same formula used in past years. Each State's percentage share of the total will not change materially.

CHANGES IN LANGUAGE

In addition to the usual changes to update the language and substitute new amounts, the estimates include two proposed changes on which I would like to comment briefly.

The first of these changes would eliminate the proviso inserted by the Congress in fiscal year 1960 language which provides that—

> no change shall be made in such 1960 program which will have the effect, in any county, of restricting eligibility requirements or cost sharing practices included in either the 1957 or the 1958 programs, unless such change shall have been recommended by the county committee and approved by the State committee.

The Secretary is responsible for administration of the program. To discharge that responsibility he needs to assure that the best interests of the farmers and the public are properly served. Although we do not propose to make many changes, some improvements are needed which we will outline in detail to you.

The second change would eliminate the proviso inserted by the Congress last year which places restrictions on the initial distribution of the ACP funds among counties. We feel that this restriction should be eliminated because it deprives every State committee of authority to make any changes from 1958 in the proportion of the State funds initially allocated to any county. The relative needs of different counties for ACP cost-sharing funds do not remain rigidly constant. For example, cost-sharing assistance for land treatment measures may need to be stepped up in counties where watershed program activities are increasing.

Relatively less cost sharing may be needed in counties where areas of farmland are withdrawn for highways, industrial uses, reservoirs, or urbanization, or other changes have taken place. As conservation needs change, the need for ACP assistance changes.

Unless these changes are taken into account in the initial allocation, disproportionate amounts become available to share costs with farmers in some counties as compared to others. This can lead to situations where farmers in some counties are receiving much more favorable treatment insofar as cost sharing is concerned, than the farmers in other counties with even greater conservation needs. We believe that the authority to determine initial county allocations should be restored to the ASC State committees.

EMERGENCY FUNDS

About $15.3 million of funds of $24 million made available under Public Laws 85–58 and 85–170 for emergency conservation measures, have not been used or committed. Under authority of Public Law 85–766 these funds remain available until expended. Therefore, as in 1960, no action needs to be taken in the 1961 appropriation bill for this emergency conservation program.

ACP FUNDS FOR TECHNICAL SERVICE AGENCIES

Consistent with our continuing purpose and with congressional recommendations last session, to provide the most economical, simple, and effective operating methods, we have changed the procedure for making ACP funds available to technical service agencies for the services of their technicians with respect to ACP practices. Experience and review thus far indicate that a much more simple and less expensive procedure, from the standpoint of records and clerical work, now is in use. These improvements in procedures were discussed with the committee in connection with the estimates for the Soil Conservation Service.

Mr. Paul Koger and his associates are present to provide information concerning the few changes that the Department proposes to make for 1961 in the scope of State and county programs and any other details regarding the operation of the program that you may wish.

ADMINISTRATIVE COSTS UNDER THE 1961 PROGRAM

Mr. WHITTEN. Mr. Peterson, I will break the usual order, and we will hear from Mr. Koger later, because the questions I wish to present here are involved in the policy of the Department, as reflected in the Bureau of the Budget amounts. I note in the budget you have recommended a reduction in this program for the following year from $250 million to $100 million program.

ADMINISTRATIVE COSTS UNDER THE 1961 PROGRAM

Based on the amount of administrative money that you have spent this year out of the total, $26.8 million, it would mean that the new program, leaving out the cost of administration, would be approximately $73.2 million.

Do you know of any program in the Department elsewhere, where you would feel that the administrative cost of $26.8 million would be in order?

Mr. PETERSON. No, sir, Mr. Chairman, I do not.

Mr. WHITTEN. Now, if the program is to be reduced as recommended by the Budget, and if it costs that $26.8 million to administer it, wouldn't that raise some serious doubts as to whether the program is worth while to keep at all?

Mr. PETERSON. I think that would be a fair conclusion in the form of the question you stated.

Mr. WHITTEN. At least it would raise the question.

Mr. PETERSON. I think it would. I do not know, and I don't suspect anyone knows, what the actual administrative costs of a program at the recommended level would be.

Because, however, it would continue in each of the some 3,000 counties, I could only come to the conclusion that the administrative costs would not be decreased in proportion to the program decrease recommended.

PRACTICES UNDER THE ADVANCE AUTHORIZATION

Mr. WHITTEN. If you keep all the prior practices, and if you keep the principle of making the program available to all farmers in all counties, presumably what will be done will be just to reduce the per-

centage of Government payment, which would leave you with all the problems that you now have, unless some of the farmers figured that the Federal contribution was so little they would stay out of it. Except for that one factor, there would be no difference in administrative costs?

Mr. PETERSON. Mr. Chairman, without knowing conclusively, I would assume, with some reason, that were the program to be reduced to the level recommended, the State and county committees would, of the total practices offered in the national handbook, narrow those offered within the State and within the county.

Mr. WHITTEN. So we would find, then, not only a change in the total amount of Federal contribution, but we would find, if the Congress were to bring this about, that the handbook would shrink.

Mr. PETERSON. It would not, so far as the national handbook is concerned, except as we will propose in Mr. Koger's testimony, but I would think—and this is a matter of deduction on my part—that a county committee, for example, having a limited amount of funds, would not spread those over a wide number of practices, but would confine them to what the county committee would consider to be the most important conservation problem in the county needing cost sharing.

Mr. WHITTEN. County committees kind of yield to public interest. Those interests in the county that had the strongest pull with the county committee on things they were interested in just might prevail, based on past experience.

Mr. PETERSON. This could happen, and no doubt does happen in some counties, Mr. Chairman. I think it is an exception rather than the rule, but, if I am informed correctly, in some counties now the committees take the view that this program should be spread as widely as possible, and the moneys pretty well factored out, as distinguished from trying to meet the most urgent conservation problem in the county.

I would say that is the exception rather than the rule, Mr. Chairman.

### SMALL COST-SHARE INCREASE PROVISION

Mr. WHITTEN. We turn next to something you commented on. It was the subject of discussion by some of our members on the subcommittee last year, and later on the floor of the House, and that is the deletion of the small cost-share increase provisions. Of course, a program of having only $73.2 million for actual practice, this small cost provision would be even less important, I presume. However, you do agree that that is not properly before the committee, in that you require legislation in order to make this change?

Mr. PETERSON. That's correct, Mr. Chairman. We felt, however, that it was incumbent upon us to call to this committee's attention, what we were proposing to do.

Mr. WHITTEN. I am glad to see your statement that program funds, whatever they may be, will be distributed among the States on the basis of the same formula used in past years.

### PROVISION PREVENTING CHANGES OR DELETION OF PRACTICES

Now we turn, however, to your suggestion about deletion of requirements that the Congress has had in the act for the last several years,

and I, for purposes of review, point out here that the provision which the Congress made to prevent the changes or deletion of practices that existed in 1957 and 1958 came because of the very real fear on the part of many Members of Congress that the Department, at the departmental level, and notwithstanding that the fact that the book of practices had been built up, from the community level up to the departmental, up to the Secretary, many of these things would be deleted, or that the State committees would be directed to eliminate many of these; and it was to prevent that that this was written in.

Now, do we get your assurance that the national catalog would be retained, and that no State committee would be told in Washington to eliminate any of these practices, in the event the language was dropped?

Mr. PETERSON. Mr. Chairman, you have my assurance that we would not eliminate at the national level practices without the concurrence of at least a majority of the State committees. We are proposing this year, as Mr. Koger will outline for you, some practice changes, but Mr. Koger has discussed those changes, I don't believe, with all of the the State committees, but with a large number of the State committees.

I can say to you that the Department is concurring with what we understand the position of this committee to be, that before individual practices are eliminated or changed, they should have the concurrence the State committees, but with a large number of the State committees. and consider the program in the several States.

Mr. WHITTEN. I realize that we live in a changing world, and it is with some hesitancy that the subcommittee went along with this prohibition; but we felt that to go along with the prohibition and retain what we had in the past, was better than to have a change and thereby eliminate many of the things we had in the past.

Mr. PETERSON. In retrospect, Mr. Chairman, I would have to agree, I think, that the action of this committee was well taken. Perhaps we were precipitous in some proposals that we had considered within the Department, but again I would give you my personal assurance and the assurance of the Department that such changes as might be proposed would only be accomplished with the concurrence of a majority of the State committees.

I say a majority, because it is most difficult, I think, to get 100 percent concurrence. The physical problem of discussing through our Administrator with each State committee is substantial. We would not, however, I would think, want to recommend a change, or incorporate a change without giving to each committee an opportunity to express its views fully; nor would we wish to incorporate a change without, as I have stated, a concurrence of at least a majority of the State committees.

### RESTRICTION ON DISTRIBUTION OF FUNDS AMONG COUNTIES

Mr. WHITTEN. Now we turn to the next provision which the Congress wrote in prohibiting the State committees to make changes for the current year from those in 1958, in proportion of State funds initially allocated in the county.

Briefly, the history of that provision was that it was called to the attention of this committee that in some States, unfortunately, we

have politics, sometimes, when it would be better if you didn't, but in the cases called to our attention there would be certain individuals who didn't happen to be of the same party as the State committee, which dominated the State committee. It was at least claimed to our committee that some State committees, because the local county committee would not take dictation or direction from the State committee as to local practices, suffered thereby. They would not follow the advice which might be the steel hook in a gloved hand; that they were penalized by having their funds withdrawn.

In other words, if the county stuck to its rights to select its practice, that instead of shifting to that which the State committee directed, that the State committee in those States said, "All right, if you are not going to use it for this purpose, we will give the money some place else." And some of these shifts of money came directly from the situation building up.

Certainly I am not trying to restrict the State committee, but I am interested in preventing a State committee from restricting a county and penalizing them by taking away from them money that otherwise would go there.

Mr. PETERSON. I would like to associate myself with you in that point of view. It is true that there are needs for shifts between counties of program funds. I would certainly hope that within the National Handbook, that whatever the National Handbook may provide, or whatever the State Handbook may provide, that within that framework the county ASC committees would be controlling in determining what practices were offered within a county, and if—this is a personal opinion—the committee feels that it should place some restriction upon the authority of the State committee in this regard, I would hope that the committee would see its way clear to permit at least some shift of funds between counties, a limited percentage or something else, because this is a problem. I recognize what the committee is trying to do, and respect it.

Mr. WHITTEN. The restriction itself creates some new problems. That is always true when you have to write them. I realize that. There were some regrets that we took this action, but it strikes me that the principle that you believe in, and I believe in, too, of giving some degree of latitude, plus providing protection against a county being penalized because it wouldn't conform, against their own rights, is sound. We provide—and I understand you do—that the funds allocated to a county, that if they are not used on or before a given date, that the State committee has a right thereafter, after giving the original county its chance, to reallocate unused funds to the area where there is a demand and a need; and if that be the principle, the basis on which you presently operate, it looks to me that through that means you could protect the county initially in getting its amount; but if it didn't use it under present procedures, the State committee could allocate after the fact.

Mr. PETERSON. I would think, and perhaps Mr. Koger would like to discuss this point further, I would think, Mr. Chairman, that this kind of an arrangement places some obligation upon the county committee to shorten its period of signups.

If there is to be any funds accumulated that might be available for transfer, I would think that the county committees should have as much latitude as possible in the period of signups for the program

to give the widest opportunity to the farmers in the county to participate in it.

Mr. WHITTEN. I certainly do, too. Yet that same county should not have the right to sit on money and let it lapse if there is a real need in other areas of the State. So somewhere in between is the point of determining how long.

Mr. PETERSON. This is, I think, the pertinent question.

RE-ALLOCATION OF COUNTY FUNDS

Mr. WHITTEN. What is the present provision? I know in some States that there have been quite large sums reallocated, and I have been glad to see it, because, so far as I have been able to tell, it was a case where the county was not going to use it, and it was put to proper use.

Mr. KOGER. Of course, the State committee now has authority to pull away from the county, funds that are not going to be used after a period of time.

Mr. WHITTEN. Could we have that time? Could you give us roughly the approximate time?

Mr. KOGER. No, sir; no certain time has been established. They usually follow a rule of around, September, or sometime after they get through with their fall practices. If they have unused funds, or it looks like they are going to be unused, they may pick up and shift funds to another county where the funds are needed.

Mr. WHITTEN. That date is within the discretion of the State committee?

Mr. KOGER. Yes, the State committee. But the biggest objection is that the county hangs onto these funds, right up to the very last date, in order to be sure that they are going to have funds for approved practices.

Mr. WHITTEN. You say the very last date, but that very last date was one set by the State committee. If that very last date is too late, the State committee has a right to move it up; is that correct?

Mr. KOGER. That's true.

Mr. WHITTEN. So, if there is fault-finding on the part of the State, it comes from their own presetting of a particular date. If they want to correct it, they have power to correct it.

Mr. PETERSON. Of the original allocation, Mr. Chairman, the State committee, it would seem to me, would be under some obligation to the county, to allow reasonable time in which to use the funds.

Mr. WHITTEN. I think you and Mr. Koger in the use of your present arguments are meeting yourself coming back, because the counties are slow to turn them loose at the date which, in the first instance, the State committee set; you are asking us to let the State take it away in advance without giving the county a chance.

I think we would be much more sound to say to the State committee: If you don't like your own arrangements, change them within reason, but don't ask us, as you recommend here, to let you in the first instance keep the money away from the county; which is what this would do if the State committee saw fit to do it.

Mr. PETERSON. It may be, Mr. Chairman, that this proposal goes further than it should. As I suggested a moment ago, it might be that the committee would want to consider permitting the State in the initial instance to change within a percentage rate.

I say that for this reason: If the county gets an allocation from the State committee of X dollars, then that committee, looking at its handbook, determines it is going to offer certain practices. If the State committee in the first place knows that there is a need in another county over and above what it was last year, because of watershed projects, or something else, it would look to us like, that within some limitations, and certainly I would be willing to have the committee set them, that the initial allocation might be varied somewhat from the preceding year.

Mr. WHITTEN. I would think that is a possibility, but the State committee would be in better shape if it pulled its deadline down a little bit to see, and put the pressure on them to move faster. Of course, again, if the Congress should follow the recommendation, by cutting the fund back to this amount, there is going to be precious little money that any county would not use; so maybe we are just arguing about something that could not arise if the Congress should go along with this restricted amount.

### ADVANCE AUTHORIZATION FOR 1961 PROGRAM

I come back, however, to the basis of this determination. You know, through this means, more and more counties, presumably, would get to have less and less interest in this program. Many of the members of this subcommittee have almost made a career in Congress, including myself, of restoring the ACP.

If, for some reason, the Department were to include the regular amount some year, I might have some folks writing me and asking me if I was still in Congress, because they are so used to me and our subcommittee having to recommend to restore this amount.

### STATE ALLOCATION OF FUNDS

But in that restoration, we need the support of all the people in the United States. This is a national program. It has a formula in the plan for distribution to States. The States have a long-term method of allocating properly within the State, and for us to repeal that, which I think we do, if we followed this recommendation, I think it goes too far.

I can appreciate that the State might want to shorten the time which is in its control. That gives the county something to start with.

Mr. KOGER. Here is what we have said, Mr. Chairman, to the State committees. "When it can be determined that some counties have not utilized their full allocation, and will not, in all likelihood, do so, county allocations may be adjusted by the State committee to insure getting the fullest, sound use of the available funds. Generally, we believe that downward adjustment should not be made for any county until a very substantial part of the 1960 program year has passed."

Mr. WHITTEN. You say, when you make up your mind; and you say, we believe a substantial part. So you have two words there that give them considerable degree of latitude, to meet this problem.

Mr. PETERSON. We have deliberately tried to again, we believe, respond to the views of this committee, Mr. Chairman, make the latitude as wide as possible on behalf of the State and county committees.

We felt that we should call this problem to the attention of this committee.

Our proposal may go further than it is wise to go, but it is a problem.

Mr. WHITTEN. I believe that answers the questions that I have for Mr. Peterson. Do we have any questions for Mr. Peterson on the overall operation, before we get to Mr. Koger?

Mr. MARSHALL. I would like to go off the record, Mr. Chairman.

(Discussion off the record.)

PRACTICES FOR INCREASED PRODUCTIVITY

Mr. MICHEL. Mr. Peterson, with reference to the $247 million that will go into this ACP program, would you say that the overall program is designed to increase the fertility and production of the farms throughout the country?

Mr. PETERSON. I don't think I could make that as a generalized statement, Mr. Michel. I think some of the practices in the program are almost exclusively of that character.

Mr. MICHEL. What portion of those practices would be exclusively characterized as such, roughly?

Mr. PETERSON. I would almost have to examine the handbook, to express a judgment on that; but, for example, practices that provide for fertilizer, for lime, for annual cover crops, I think come within that framework.

Mr. MICHEL. It is my own position that in talking with many, many of my own farmers, that, to my mind, putting roughly a quarter of a billion dollars into increasing the productivity of our farms, at a time when the very problem the country is faced with is a problem of overproduction is folly. The Congress, having once embarked upon a course, hates to get to the point where they have to take Santa Claus away from the farmer.

I've told my farmers, it is not popular for me to come back and tell you that I am going to vote to take $100 or $200 or $300 away from you in agricultural lime and phosphate payments but would you vote against me if we eliminated the program for the whole country? They said, "No; but because it is there, we are going to go in and get our share."

Last year I sponsored an amendment to cut $100 million from this particular program, and we lost. Some of the objections and some of the votes against the amendment came from the New England States. Spokesmen for the chicken farmers; said, "this is the only chance we have to get our hand into the till, while you fellows in the Midwest and West are getting your vast subsidies for your wheat and corn and commercial grain crops that you produce."

So this year I made a study of every county—I figured I might as well get my home State of Illinois first, before talking about other sections of the country; and I directed an inquiry to every manager of the local ASC office and got some figures together, not only on ACP, but on the conservation reserve program, at which time I will want to put those into the record.

I was surprised to learn, in going over the reports from all those counties, the number of payments that are over $1,000 per individual farm, or the number over $500.

It seems to me we have gotten completely unrealistic in this whole program.

Has the Department made any study or given any consideration to what is a reasonable figure to give a farmer, and for how many years do we continually keep doling out these funds? We talked about buying the farmer's vote with the soil bank program several years ago. This seems to me to be just about the same thing.

In all due respect to my colleagues who have served for a number of years on this committee, if they have been responsible for our embarking upon a program a number of years back, when conditions were completely different, it seems to me that now, today, we have to be flexible enough and change direction; and that is the same point I was trying to make in research.

If we shift our emphasis to utilization, to use what we have already produced, I think we are moving in a right direction. It just seems to me that we continually keep going on and on, just because it was a good program when it was initiated.

But is there any chance at some future date that we can call it to a screeching halt? It is a quarter of a billion dollars that we have got involved in this one item.

Mr. PETERSON. Mr. Michel, I don't recall any studies made within the Department of that kind that you have mentioned. Some of us have reviewed, from time to time, the practices offered. Some of us hold to the view that there are within those practices individual ones which, in our judgment, we would characterize as production-inducing practices.

There is a good deal of difference of view as to whether the building of fertility in soil is something that the public should participate in the cost of, or something which the farmer, using good husbandry, should do for himself.

Personally, I do not eliminate, in my thinking at least, the use of cost sharing as a conservation tool. I am concerned as you are concerned, that a program with the same practice goes on and on and on and on. We have not yet had enough experience with a little different approach that we are using in the Great Plains program, where we enter into a contract. We obligate funds to do a complete conservation job on a farm, and then the contract is terminated, and the payments stop.

I certainly am not prepared to say that that is a preferred approach to this one, or that it has application nationwide. We think it has applicability to the peculiar problems of the plains, but there is a program where a contract is entered into, the obligation is incurred by the Government under the proper setup, the contract is performed, it terminates, and that is done.

I cannot tell you when the ACP program might come to, as you suggest, a halt. It is a question that has intrigued me. Certainly, the conservation problems of the country change from time to time: and I suppose, in the final analysis, it gets to be a matter of individual philosophy of the function of the Government, as to how far, if at all, it goes in sharing with private landowners the cost of doing certain things on their own land.

### PAYMENTS TO FARMERS

Mr. MICHEL. According to the figures that I can get together here for my own State, it is quite obvious that the small farmer—there are a considerably greater number of small farms getting the help

and assistance under the program—and if we would use as a figure, for instance, those getting under $300, I don't know where one would strike an arbitrary figure and say that you are helping the small farmer, or you are helping the big farmer get bigger.

What would be the effect if a limitation were written into this appropriation bill that none of these payments could exceed $500 per one individual farm?

Mr. PETERSON. I would think, Mr. Michel, that this would mean more farmers per county would have an opportunity to participate in the program.

As I recall—and Mr. Koger might correct me if I am wrong—the average payment per participant on a national basis today is a little less than $200.

Mr. KOGER. $197.

Mr. MICHEL. This is the average payment throughout the country?

Mr. KOGER. 1,119,000 farmers participated in the program in 1958, with an average payment of $197.

Mr. MICHEL. How has that figure grown through the years? Has it been a steady incline? Would the curve be on a straight line, or would there be fluctuations in it?

Mr. KOGER. The amount per farmer has gotten larger. The number of participants has dropped from 1,250,000 in 1956 down to 1,119,000 in 1958.

Mr. MICHEL. You say actually the number of participants has decreased, and the amount of payment per farm has increased; probably not out of proportion to the shift which is taking place toward enlargement of farms.

Mr. KOGER. I believe in 1956 the average payment was approximately $176. It has increased to $197 in 1958.

Mr. SANTANGELO. Will the gentleman yield? May I ask if there is a limitation of payment to any one farmer?

Mr. PETERSON. Yes, $2,500, I believe, is the limitation in the appropriation.

Mr. SANTANGELO. Is there any indication as to how many people are receiving the full maximum?

Mr. PETERSON. Do you have those figures, Mr. Koger?

Mr. KOGER. Yes, we have that. In 1958, which is the last year for which we would have complete data, there were 796 farmers whose payments were exactly $2,500.

Mr. SANTANGELO. Tell me, is there a chart in the record, or in your files, which indicates the varying sizes of payments made to various groups of farmers; such as the number of farmers getting $2,500, the number of farmers getting $1,500 or $500, the same analysis that Congressman Michel made up?

Mr. MICHEL. By States.

Mr. SANTANGELO. By States.

Mr. KOGER. We have that by States.

Mr. SANTANGELO. I think it would be helpful if that were incorporated in the record.

Mr. KOGER. We will be happy to do that.

(The material requested is as follows:)

*Estimated number of payees in specified size-of-payment groups under the agricultural conservation program, by States, 1958* [1]

[Number]

| State and region | Estimated number of payees in size-of-payment groups of: | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $1 to $20 | $20.01 to $40 | $40.01 to $60 | $60.01 to $100 | $100.01 to $150 | $150.01 to $200 | $200.01 to $300 | $300.01 to $400 | $400.01 to $500 | $500.01 to $1,000 | $1,000.01 to $2,000 | $2,000.01 to $2,499.99 | Exactly $2,500 | $2,500.01 and over[2] | Total payees |
| Maine | 159 | 408 | 551 | 1,026 | 815 | 690 | 625 | 338 | 205 | 266 | 17 | 0 | 0 | 0 | 5,100 |
| New Hampshire | 61 | 168 | 164 | 306 | 286 | 292 | 294 | 197 | 137 | 267 | 9 | 0 | 0 | 0 | 2,181 |
| Vermont | 401 | 744 | 827 | 1,425 | 1,325 | 1,075 | 1,009 | 564 | 217 | 20 | 2 | 0 | 0 | 0 | 7,609 |
| Massachusetts | 209 | 314 | 329 | 668 | 593 | 433 | 398 | 205 | 98 | 134 | 26 | 0 | 0 | 0 | 3,407 |
| Rhode Island | 13 | 36 | 35 | 67 | 60 | 39 | 59 | 32 | 13 | 24 | 4 | 0 | 0 | 0 | 382 |
| Connecticut | 152 | 270 | 200 | 297 | 297 | 248 | 304 | 185 | 97 | 119 | 17 | 0 | 0 | 0 | 2,186 |
| New York | 235 | 948 | 1,471 | 3,677 | 4,667 | 4,372 | 4,078 | 1,934 | 1,030 | 1,117 | 98 | 5 | 0 | 1 | 23,633 |
| New Jersey | 96 | 207 | 238 | 542 | 468 | 497 | 431 | 228 | 148 | 247 | 29 | 0 | 0 | 0 | 3,131 |
| Pennsylvania | 410 | 1,791 | 2,041 | 4,477 | 4,080 | 3,421 | 3,308 | 1,689 | 991 | 1,511 | 175 | 0 | 0 | 0 | 23,894 |
| North Atlantic | 1,736 | 4,886 | 5,856 | 12,485 | 12,591 | 11,067 | 10,506 | 5,372 | 2,936 | 3,705 | 377 | 5 | 0 | 1 | 71,523 |
| Ohio | 628 | 2,993 | 4,209 | 9,099 | 6,981 | 4,734 | 3,980 | 1,842 | 1,031 | 1,323 | 197 | 14 | 4 | 1 | 37,036 |
| Indiana | 2,844 | 6,278 | 7,246 | 14,043 | 8,606 | 5,243 | 3,121 | 1,253 | 618 | 694 | 121 | 9 | 3 | 8 | 50,087 |
| Illinois | 978 | 5,639 | 9,242 | 21,463 | 15,763 | 9,057 | 5,338 | 1,975 | 842 | 832 | 125 | 5 | 0 | 1 | 71,260 |
| Michigan | 626 | 1,474 | 1,523 | 3,303 | 3,045 | 2,434 | 2,298 | 1,371 | 883 | 1,933 | 650 | 19 | 0 | 1 | 19,560 |
| Wisconsin | 723 | 1,983 | 2,267 | 4,951 | 4,848 | 3,744 | 3,431 | 1,649 | 869 | 1,389 | 356 | 67 | 35 | 1 | 26,313 |
| Minnesota | 3,922 | 7,668 | 5,751 | 9,380 | 6,794 | 4,255 | 3,106 | 1,408 | 877 | 1,341 | 428 | 56 | 30 | 14 | 45,030 |
| Iowa | 3,485 | 7,060 | 7,021 | 11,049 | 8,200 | 5,375 | 4,955 | 2,631 | 1,451 | 2,369 | 659 | 74 | 8 | 4 | 54,341 |
| Missouri | 324 | 1,502 | 2,363 | 6,516 | 8,272 | 7,606 | 6,761 | 3,265 | 1,842 | 2,548 | 473 | 53 | 6 | 0 | 41,531 |
| North Dakota | 2,867 | 7,537 | 6,090 | 9,476 | 5,963 | 3,399 | 1,950 | 718 | 298 | 340 | 52 | 4 | 1 | 0 | 38,695 |
| South Dakota | 4,540 | 6,152 | 4,704 | 6,417 | 4,084 | 2,619 | 2,616 | 1,243 | 678 | 1,122 | 428 | 0 | 2 | 0 | 34,605 |
| Nebraska | 2,338 | 3,192 | 2,415 | 3,357 | 2,531 | 1,985 | 2,119 | 1,383 | 978 | 1,892 | 726 | 107 | 7 | 7 | 23,037 |
| Kansas | 462 | 843 | 1,065 | 2,314 | 2,520 | 2,391 | 2,821 | 1,750 | 1,101 | 2,259 | 840 | 113 | 24 | 7 | 18,510 |
| North Central | 23,737 | 52,321 | 53,896 | 101,368 | 77,607 | 52,842 | 42,496 | 20,488 | 11,468 | 18,042 | 5,055 | 521 | 120 | 44 | 460,005 |
| Delaware | 48 | 148 | 170 | 316 | 323 | 228 | 200 | 95 | 60 | 78 | 21 | 0 | 0 | 0 | 1,687 |
| Maryland | 338 | 931 | 892 | 1,700 | 1,528 | 1,103 | 893 | 402 | 252 | 209 | 32 | 0 | 0 | 1 | 8,281 |
| Virginia | 1,200 | 2,139 | 2,300 | 4,313 | 4,084 | 3,103 | 3,138 | 1,764 | 1,041 | 1,210 | 196 | 8 | 0 | 1 | 24,497 |
| West Virginia | 778 | 2,025 | 2,054 | 3,067 | 2,277 | 1,599 | 966 | 430 | 199 | 230 | 28 | 1 | 0 | 0 | 13,654 |
| North Carolina | 13,089 | 15,428 | 10,946 | 17,201 | 9,163 | 5,065 | 4,021 | 1,285 | 594 | 655 | 114 | 6 | 1 | 0 | 77,568 |
| South Carolina | 1,557 | 2,173 | 1,604 | 2,719 | 2,123 | 1,841 | 1,632 | 875 | 606 | 1,154 | 453 | 80 | 7 | 1 | 16,825 |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Georgia | 633 | 2,667 | 3,738 | 7,516 | 6,206 | 4,467 | 4,120 | 2,402 | 1,451 | 2,431 | 666 | 53 | 5 | 0 | 36,355 |
| Florida | 328 | 821 | 1,031 | 1,812 | 1,500 | 1,275 | 1,126 | 739 | 490 | 950 | 425 | 72 | 2 | 0 | 10,571 |
| South Atlantic | 17,971 | 26,332 | 22,735 | 38,644 | 27,204 | 18,681 | 16,096 | 7,992 | 4,693 | 6,917 | 1,935 | 220 | 15 | 3 | 189,438 |
| Kentucky | 2,770 | 3,283 | 3,907 | 8,201 | 7,502 | 5,807 | 4,932 | 2,436 | 1,320 | 1,670 | 276 | 38 | 3 | 1 | 42,146 |
| Tennessee | 2,957 | 7,088 | 7,479 | 12,465 | 8,767 | 5,432 | 3,293 | 1,186 | 538 | 548 | 67 | 2 | 1 | 0 | 49,823 |
| Alabama | 1,316 | 3,472 | 3,537 | 6,041 | 4,754 | 3,621 | 2,793 | 1,628 | 994 | 1,903 | 767 | 85 | 7 | 0 | 30,918 |
| Mississippi | 1,628 | 3,141 | 3,603 | 6,988 | 5,712 | 4,114 | 3,452 | 1,664 | 989 | 1,822 | 723 | 130 | 5 | 2 | 33,973 |
| Arkansas | 3,746 | 5,411 | 3,778 | 6,947 | 4,781 | 3,446 | 2,401 | 1,052 | 684 | 1,127 | 360 | 102 | 12 | 1 | 33,848 |
| Louisiana | 1,923 | 2,695 | 1,742 | 3,153 | 2,298 | 1,839 | 1,789 | 962 | 709 | 1,393 | 488 | 122 | 14 | 4 | 19,131 |
| Oklahoma | 745 | 1,830 | 1,855 | 3,832 | 3,913 | 3,649 | 3,882 | 2,436 | 1,800 | 3,125 | 765 | 1 | 0 | 0 | 27,833 |
| Texas | 2,045 | 5,224 | 6,136 | 12,388 | 1,1879 | 10,193 | 10,076 | 6,393 | 4,405 | 10,844 | 0 | 0 | 0 | 0 | 79,583 |
| South Central | 17,130 | 32,144 | 32,037 | 60,015 | 49,606 | 38,101 | 32,618 | 17,757 | 11,439 | 22,432 | 3,446 | 480 | 42 | 8 | 317,255 |
| Montana | 253 | 699 | 877 | 2,018 | 2,003 | 1,894 | 2,164 | 701 | 460 | 976 | 495 | 98 | 63 | 17 | 12,718 |
| Idaho | 422 | 561 | 518 | 942 | 818 | 794 | 774 | 630 | 465 | 663 | 213 | 2 | 0 | 4 | 6,806 |
| Wyoming | 107 | 209 | 205 | 347 | 324 | 279 | 350 | 274 | 221 | 819 | 512 | 55 | 37 | 21 | 3,760 |
| Colorado | 931 | 534 | 615 | 886 | 767 | 661 | 737 | 542 | 394 | 1,088 | 791 | 104 | 59 | 29 | 8,138 |
| New Mexico | 69 | 145 | 171 | 416 | 365 | 308 | 323 | 225 | 181 | 837 | 379 | 68 | 43 | 7 | 3,537 |
| Arizona | 72 | 24 | 24 | 89 | 67 | 60 | 75 | 83 | 82 | 460 | 441 | 68 | 107 | 6 | 1,658 |
| Utah | 258 | 332 | 305 | 478 | 453 | 362 | 389 | 281 | 181 | 558 | 202 | 15 | 1 | 35 | 3,850 |
| Nevada | 7 | 29 | 26 | 48 | 61 | 51 | 68 | 55 | 35 | 117 | 77 | 14 | 17 | 7 | 612 |
| Washington | 201 | 582 | 664 | 1,368 | 1,364 | 1,088 | 1,056 | 588 | 419 | 812 | 313 | 46 | 21 | 3 | 8,525 |
| Oregon | 185 | 433 | 406 | 844 | 796 | 704 | 757 | 495 | 464 | 1,200 | 195 | 4 | 0 | 6 | 6,489 |
| California | 59 | 108 | 156 | 405 | 596 | 667 | 930 | 755 | 633 | 2,031 | 972 | 252 | 248 | 33 | 7,845 |
| West | 2,564 | 3,656 | 3,967 | 7,841 | 7,614 | 6,868 | 7,623 | 4,629 | 3,535 | 9,561 | 4,590 | 726 | 596 | 168 | 63,938 |
| Alaska | 1 | 5 | 6 | 14 | 11 | 36 | 42 | 27 | 20 | 14 | 2 | 0 | 0 | 0 | 178 |
| Hawaii | 5 | 158 | 8 | 24 | 26 | 31 | 24 | 25 | 8 | 52 | 27 | 13 | 19 | 0 | 420 |
| Puerto Rico | 1,935 | 2,561 | 1,383 | 1,300 | 618 | 462 | 229 | 130 | 104 | 193 | 79 | 35 | 4 | 0 | 9,033 |
| Virgin Islands | 2 | 6 | 3 | 9 | 4 | 5 | 5 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 37 |
| Insular | 1,943 | 2,730 | 1,400 | 1,347 | 659 | 534 | 300 | 184 | 133 | 259 | 108 | 48 | 23 | 0 | 9,668 |
| Total | 65,081 | 122,069 | 119,891 | 221,700 | 175,281 | 128,093 | 109,639 | 56,422 | 34,204 | 60,916 | 15,511 | 2,000 | 796 | 224 | 1,111,827 |

[1] Excludes 2,632 payees under naval stores conservation program. Includes managers of manager-type pooling agreements.

[2] Public Law 85-118 limited payment to a participant to $2,500 except in the cases of pooling agreements. Payments to a partiicpant under a pooling agreement cannot exceed $10,000 as provided in sec. 8(e) of the Soil Conservation and Domestic Allotment Act.

Mr. SANTANGELO. When the maximum was $1,500, were there more than the 790 who were receiving the maximum of $1,500?

Mr. KOGER. We will have to check that. Do you have that, Mr. Hunt?

Mr. RITCHIE. We probably do have that information.

Mr. PETERSON. We will supply it for the record.

(The information requested follows:)

Under the 1954 and 1955 programs, payments were limited to $1,500 per person. Records are not available which show the number of persons receiving the maximum of $1,500; however, in the 1954 program of $195 million there were 7,898 payments between $1,000 and $1,500, and in the 1955 program of $250 million there were 15,120 payments between $1,000 and $1,500.

Mr. SANTANGELO. I would like to find out, if they were to limit it to $1,000 per farm, how many farmers would be adversely affected? When I say adversely affected, I mean those who would not receive the additional $500 or $1,500.

Mr. RITCHIE. This table would indicate approximately 18,000 farmers in 1958 who received, for total earnings, over $1,000. These are on a personal-limitation basis, and not on a farm basis.

Mr. WHITTEN. The limitation is now $2,000?

Mr. PETERSON. $2,500.

Mr. RITCHIE. So that in this number would be people who might own a dozen farms; but they are still limited to this amount, as one person.

Mr. SANTANGELO. If the limitation were reduced to a thousand dollars, do you think it would adversely affect the program of conservation?

Mr. PETERSON. As to individuals who would have the type of practice that would come within the higher limitation, the answer would be "Yes". As to the number of farmers involved, I believe Mr. Ritchie said it would be 18,000 farmers.

In some areas of the country, Mr. Santangelo, where there are water conservation problems, for example, such as stock ponds, things of that kind, that construction type of practice runs higher in cost than the tillage type practices; and the program with the lower limitation would, of course, make it less possible for farmers to share costs of those more expensive construction-type practices.

Mr. SANTANGELO. In any event, the great bulk of farmers would not be adversely affected, because your average is $197 per farmer, and of the total participants of 1,111,827, more than a million are getting less than the $1,000; so that upon examination you wouldn't be hurting those farmers, the great bulk of the farmers.

Mr. PETERSON. On the basis of average participation, dollar-wise, at $197-plus per participant, there would be relatively few farmers affected by that limitation.

### NATURE OF THE AGRICULTURAL CONSERVATION PROGRAM

Mr. WHITTEN. If this program is, as my colleague envisions it, it should be ended. I, as one of the supporters of this program, have envisioned, and as all supporters have seen it, it is a program for land.

Mr. ANDERSEN. That's right, and our investment in soil and water conservation today will pay off big dividends for future generations.

Mr. WHITTEN. Not farms. If it is, as my colleague feels, that we shouldn't require the farmer to put up any of it, if it is a relief program or grant program, there should be a limit on how much you give a person; but it is, as those who sponsored it and supported it contend, as I see the facts prove, a program that the people of the United States feel is essential to protect the soil and the land, not only on which we have to depend, but on which future generations have to depend, whereby the Federal Government, to get the conservation job done, agrees to put up on an average of one dollar out of two; and if the farmer puts up his labor, which leaves the Federal Government putting up about a third of the overall cost, in the belief that it is to the public interest to see that the job gets done.

Now, further, it is a national program, and being national I realize that you have to let all your areas, whether they need it or not, be included.

Now, there is no authority to take the money from my colleague's State and put it in any sections of this country where the erosion and the worn-out natural resources are terrible, as is true in many sections of this country. There is no authority in the law to take it away from any State that doesn't need it as badly, because everybody else who is getting it wants it, as they have stated to my colleague.

So you have to let them in on such national program, in order to meet the real crying needs we have in many sections of this Nation.

Now, this argument by those that have always opposed it, takes the view that this increases production. If we maintain or restore the fertility of our soil, quite naturally we increase or protect its potential production for the future generations, so we have to admit that that is true.

But in this program there are many, many practices where it is involved, as flood protection, small dikes and levees. There are practices to open up ditches. There are practices to reforest land.

So, by far the major part of this program, as I understand it, may end up with improvement, or at least holding the line on erosion.

Now, I heard one of the top scientists, not political in the least, say that by measurement the topsoil of 40 acres of land flows by the city of Memphis, Tenn., every day of the year, in spite of all of our efforts in the field of conservation, of conserving our resources.

If we are going to talk about how many farmers are going to be taken out, if we are going to be talking about this as a free-will grant by the Government, in the first place it ought to be ended. Secondly, if it is that, we ought to stop any requirement for the farmers to put up another equal amount of his money, plus his labor. If this isn't a vehicle to protect and preserve the soil of this Nation, if it isn't that, it ought to be ended.

But it is ridiculous, not referring to you personally, Mr. Peterson, to cut it down where you spend $26.8 million running a $73 million program.

We would probably be better off to spend that for hiring day labor to put on these farms, if we get down to that level. We did have, and here is something else I am convinced of, when you cut out the top

limit on how far a man can go in preserving his land, you are cutting out the very best practices, according to the Department's own argument.

The Department says that these major things that really count are what you want, and those are the ones that come in the higher cost bracket. So you pull it down to $250, and you have limited yourself to the very type of practices that most of you folks complain about.

I say again, and I am not going to make a speech except once a year, I guess, or two or three times a year; but if we are to meet this problem, we can't afford to let the farmers be solely responsible for it, when the records show, through the years, that the American farmer has worn out more soil in a short period of history than any nation in the world, largely because they had the resources to dissipate, largely because farm income didn't compare with other income. So they just bled the land. That is back through history. We no longer have the resources to waste.

I say right here, I don't feel that the American taxpayer should give the farmer a dime to take care of his own land, but I say if we have learned that he doesn't fully, if farm income is down where he doesn't or cannot, if we have seen him wear it out and study the history of China and India, I say we are foolish as American people if we don't by some means, somehow, see to it that the caretaker of the land protects it for the future.

In this program, as you said, there are about 1,119,000 participants. I don't know where you could get that many people putting up their money and labor, trying to preserve land for future generations, to save my neck. When you look at the soil bank, $4 billion spent in a very few years, it is ridiculous, in my opinion, and I speak for myself to urge an expansion of that program participated in by about 150,000, while trying to strangle the ACP program.

Everybody is entitled to his view.

Mr. MARSHALL. You gave a fine statement.

I would like to supplement just one thing to your statement, and that is that when you are talking about these practices, a number of these practices that go to these farmers, in small quantities, they are recurring practices; whereas, in some of our larger practices, you put in a retention dam. It is built. That doesn't show up again in the higher limitation the following year, so that you are naturally eliminating some of these with the good conservation work that is being done, which would be rather difficult to do, if you put your limitation down too low.

Mr. PETERSON. I find myself in a measure of agreement with each of you gentlemen who have spoken.

Mr. WHITTEN. Off the record.

(Discussion off the record.)

COST SHARING

Mr. PETERSON. Back on the record. I started to say earlier that I find myself in a good deal of agreement with the several expressions here made. I think—and this is a personal opinion, and I suppose that this resolves itself to personal opinion in many respects—I never could see the justification for spending public dollars to share with

farmers or anybody else the cost of doing those things which they are compelled to do on a recurring basis to stay in business. I personally believe in cost sharing as a tool to achieve conservation and protection of the land.

I am convinced, maybe erroneously, but nonetheless convinced, that there are within the present program practices which have as their primary purpose sharing with the farmers the cost of doing things which good husbandry would require them to do, whether there is a program or not.

We may find disagreement as to what those practices are, but I want to emphasize again that I personally believe that cost sharing is a desirable conservation tool.

Disagreements, if disagreements there are, come around what particular practices or steps are, in effect, conservation, and which just go on and on and on ad infinitum as part of normal farming operations.

Mr. WHITTEN. It comes back to this, if I might fill in, that to have a national program, quite naturally it has to be, or has to include areas like my colleague's area, where they don't have the same need for it that you have in others. You have involved in it, too, the level of farm income, the dollars the farmer has to do with. He has to do some of these, even if he doesn't participate in this program. In other areas the program is badly needed.

I certainly agree with my colleague from New York that we need to save money, but if I saved all the things I know in Congress, the poorest place in the world I know to start saving is by letting the land go down the rivers.

We are fortunate in this country in that about 12 percent of our people make a living for the rest of us. When we look at the world around, India and China, we see that it takes about 88 percent of the people to feed the other 12. That is not going to happen overnight in this country, but I promise you that we made more rapid progress down hill in the 50-year period before we started the soil conservation program as any other nation did in 50 years. So it is the land that is involved here. And we have to make it national in scope. You do have some areas that are primarily interested in some practices that don't apply to other areas.

In some areas they need terracing; in other areas they need this, and in some areas they need that.

Again, if a farmer has the money, and is making a net profit, he ought to do it. Let's say all the farmers were to agree that we abolish this program, and God knows I know this wouldn't help. But let's say all the farmers said, "Next week it will be all right if Congress ended this program, so we get mad and don't put a lick back in the land."

I don't think American farmers would ever do that; I know they wouldn't. But if that should happen, should we sit here as a nation and let it happen, without doing something for our own protection, by seeing that the job is done?

The point of it is that the job has to be done. How can you best do it? I think that is the best mechanism that I have heard of, when you get—and I repeat for the record—1,119,000 farmers putting up an equal amount of money, and their labor, at a cost of $250 million

a year to all of us. I don't know where you could get more effort for as little money any place you can point your finger.

Mr. PETERSON. I think, overall, Mr. Whitten, the program has merit. I said, and this is a matter of opinion, a personal opinion on my part, and it may be erroneous, but it is nonetheless my opinion, that practices which recur year after year after year and which, when I farmed, I had to do; it seems to me they have no place in this program if it is to achieve the purposes which you yourself enunciated.

I agree with those purposes.

Mr. WHITTEN. You presume, that if we quit he would take it up. If this Congress had followed your views for the last 7 years, the Department's views, and if we learned that while they ought to, they did not, and land was going down, would you think then that we ought to step in and do something just for our sake, not his?

Mr. PETERSON. I would hope I would be among the vanguard of those who would come back and ask you to reinstitute it, sir.

Mr. WHITTEN. I have that opinion of you.

RELATION OF PARTICIPATION TO AVERAGE IN ACP

Mr. SANTANGELO. I note that a few years ago we had 1,250,000 participating in the program, since then it has been reduced to 1,119,000, or a loss of 131,000 participants. I don't know how much acreage has been taken out of the program as a result of the decline in participation.

Mr. WHITTEN. Could I make a comment?

Mr. SANTANGELO. I just wanted to finish my thought—and the limitation would only perhaps, at the maximum, eliminate 18,000.

Mr. WHITTEN. People. But how many acres?

Mr. SANTANGELO. I am saying the same thing. I don't know the correlation between the farmers and the total acreage involved, but we do know that there has been a decline of 131,000 participants. We don't know how much acreage has been involved in that, as compared to what we would eliminate if we limited payments to $1,000; and we know 18,000 would be adversely affected, and would not receive the excess over $1,000 up to $1,500. Whether they would be out of the program or in the program is problematical. We don't know how much acreage is involved in those 18,000 participants.

Mr. WHITTEN. If I could, let me point out two possibilities: The first, on the decreased number of participants, total farmers have decreased in perhaps the same percentage. They took off the acreage limitation on corn, and doubtless in my colleague's State they put additional acreage in corn. Some States increased corn acreage by 21 percent. So when you take the limitations off on corn and let them put it in corn, to add to production, there would be less that have land to put in the program. But your total population, farm population, has gone down at the same time these participants have dropped out.

Mr. SANTANGELO. I think, Mr. Peterson, the Department will have to tell us how much acreage is involved.

Mr. PETERSON. We would have to get the statistics and insert them in the record. The technical people would have to analyze that question, Mr. Santangelo, and furnish it for the record.

Mr. SANTANGELO. I would appreciate it, because it would give me a better idea. I would like to make my decision based on how much acreage would be affected, because I have not made up my mind as to what the limitation should be.

Mr. PETERSON. We will try to supply the information which you request for the record.

Mr. WHITTEN. Supply it to us then.

(The information requested follows:)

Under the 1956 program there were 1,258,474 participants and the acreage of farmland on participating farms was 427,111,000 acres. In 1958 there were 1,118,847 participants and the farmland on participating farms was 402,214,000 acres. Thus between 1956 and 1958 the number of participants decreased 11 percent and the acreage decreased 6 percent.

Available reports do not show the acreage on farms which received more than $1,000 under the 1958 program but estimates (based on the number of such farms in each State and the estimated average number of acres per farm) indicate that these farms contained about 11 million acres, or 3 percent of the total acreage on all participating farms.

If there had been a maximum payment limitation of $1,000 for 1958 it would have decreased the cost-share payments to this group by about $11 million, but would not necessarily have reduced the number of participants or the acreage of participating farms.

RECURRING PRACTICES

Mr. MICHEL. Mr. Peterson, I have got to certainly subscribe to the thoughts you expressed and your philosophy relative to these recurring items, which are particularly in the area of lime and phosphate and seeding operation, nothing more but just another subsidy.

Has the Department made any kind of a study at all of the number of farmers or farms that would be engaging in this continual practice year after year just for these handout payments. This to my mind is not real soil-conserving practice, where it is really needed, but just something to coke up the production for the next year or two?

Mr. PETERSON. Each program year, Mr. Michel, we publish, as soon as the results of the program are available, a statistical analysis which depicts State by State and practice by practice the manner in which the farmers have participated, and used this program; and those publications are available to you and the committee and anyone else who wants them.

Mr. MICHEL. The chairman has referred to my section of the country on a number of occasions.

Mr. WHITTEN. I am just accepting your statement.

Mr. MICHEL. I must state that the feeling which many of my farmers have in the good, rich, productive area which I represent, is the fact that through the years we were bringing marginal and submarginal land up into the same category, through a Federal payment of some kind or another.

I appreciate the gentleman's thinking 50 years and 100 years ahead, when we are going to need this land, but at a time when our problem is not, certainly, one of producing enough, I cannot see how we are going to be getting out of our predicament for a number of years to come, unless we shift the emphasis.

One further question, and that is this: I appreciate that in a long-established program, if you stop it and start it up again, you might conceivably run into a costly program, or a more costly program because of the stop and start.

It there any way in this kind of a program that you can lay back a little bit, particularly when we have got so much and then forge ahead when the situation may be reversed to the point where demand exceeds supply.

Mr. PETERSON. I think there are two ways, one of which is proposed with regard to the forward authorization, the reduction in the amount of funds made available in the program, or a limitation on the kind of practices that are made available through the program.

Mr. MICHEL. That is all.

Mr. WHITTEN. Don't you agree if the amount of Federal participation were reduced from $2,500 to $500, as somebody has mentioned here, that the practices that would go by the board are largely those that you yourself think are most valuable?

Mr. PETERSON. I think that is a fair conclusion, Mr. Chairman, and I say that for this reason: In the management of water, various kinds of engineering structures are required. It may be different, like the soil is porous, and the water dissipates away from the point of intended use. It may be an impoundment reservoir; it may be erosion control structures; it may be any one of a number of construction-type practices, as distinguished from tillage-type practices. Those are more expensive, per practice, than the tillage-type practices, and, in view of the fact that they are more expensive, I could only surmise, I think correctly, that farmers installing those practices would be more reluctant to do so if there were not available to them some measure of cost sharing.

I think some of them would be constructed irrespective of cost sharing. I have no way of knowing how many. But certainly I believe that cost sharing for those type practices bring into being more of them than would be brought into being without the cost sharing.

LIMING PRACTICES

Mr. WHITTEN. Mr. Peterson, in connection with my colleague's statement about keeping marginal folks in business, you mentioned limestone. I have no interest in limestone, as such, at all; but the thing that some lands need is lime, is that not correct?

Mr. PETERSON. That is quite correct.

Mr. WHITTEN. Particularly true in the New England States, is it not?

Mr. PETERSON. I believe that to be right, as well as some areas of the Midwest, or the area where I originate, on the Pacific coast. I had to lime my fields quite regularly when I was farming.

Mr. WHITTEN. In many areas of this country, such as New England, we had lots of farmers to start with, and we have fewer and fewer, and they are gradually drifting into cities and defense employment, and various other things. Don't you think it is sound for the Federal Government to try, as they gradually leave these areas, to leave the land in fairly good shape, as against squeezing them out by not in

any way enabling them to protect the land as we go along. If lime is the thing that New England needs on its soil, according to their own judgment, do you think we should eliminate such region from the program by striking out those practices that have most value in their immediate section?

Mr. PETERSON. I hoped my remarks would not be construed in that light, Mr. Chairman. I said this, or tried to, that in my judgment the Federal Government should not financially participate in those practices which are of an annual or recurring nature.

Mr. WHITTEN. Do you consider lime to be such, if you put lime on the land, that it needs it, that it doesn't deteriorate or disappear in a year?

Mr. PETERSON. It has to be renewed periodically.

Mr. WHITTEN. I am sure of that.

Mr. PETERSON. That will vary by the type of land and the degree of acidity and the type of crop grown.

ROTATION OF COVER CROPS

Mr. WHITTEN. We cannot do it, but we are familiar with these tremendous increases in corn production last year, 21 percent in some States. Talking about production—if, through this means, here we could persuade some of those folks to put that land they put in corn into grass, we would save $1.12 last year, and $1.06 a bushel of corn this year.

If we could get an acre of corn which produces 100 bushels, if you could get him to put it in grass through this means, wouldn't you save approximately $112?

Mr. PETERSON. You would, Mr. Whitten, if it would stay in grass; but, if I am correctly informed, and I do not know whether I am or not because I have not personally investigated on the ground, the rotation cover crop, in a rotation, goes out of corn into cover crop this year, and in 2 years comes back into corn again——

RELATION OF ACP TO GREAT PLAINS CONSERVATION PROGRAM

Mr. WHITTEN. We don't put that in cover crop, then, so we leave it for the wind to blow around. How much have you folks recommended for us to spend in the Great Plains area, trying to stop dust?

Mr. PETERSON. We are recommending $10 million in the current year's program.

Mr. WHITTEN. In the last 7 years we have spent millions out there through an enlarged ACP program 1 year, and two or three other emergency programs.

Mr. PETERSON. I believe the maximum authorization was $15 million in 1 year, Mr. Hunt? It was something of that magnitude; I don't recall exactly.

Mr. WHITTEN. Is this going to be followed through? What would you think about $500 limitation on the Great Plains program, and $500 limitation on the soil bank?

Mr. PETERSON. I will comment with respect to the Great Plains program. I am not personally close enough to the soil bank program

in its administration to comment intelligently; but with respect to the Great Plains program, were that to be done, the program could not be carried out, in my opinion.

PARTICIPATION IN GREAT PLAINS PROGRAM

Mr. WHITTEN. In the Great Plains program I believe you show that you had 3,000 participants, or something like that.

Mr. PETERSON. 3,988 contracts in force January 1, 1960.

Mr. WHITTEN. 3,988. That is $10 million per year for 7 years, roughly estimated, is it not?

Mr. PETERSON. No, that number of contracts would obligate about $20 million. The program started with enabling legislation which was passed in 1956.

Furthermore, in the Great Plains program, at the time the contract is consummated, the total cost of the contract, whether it be for 3, 5 or 10 years, is obligated.

Mr. WHITTEN. But money is not provided for it? You just get your money year by year?

Mr. PETERSON. No; the money is obligated when the contract is entered into.

AVERAGE PAYMENT PER CONTRACTOR GREAT PLAINS PROGRAM

Mr. WHITTEN. What is the average amount that would be involved in a contract—total cost?

Mr. PETERSON. It has averaged almost $5,000 per contract for the program so far; as of January 31, 1960, the average was $4,985. Contracts encompass all of the conservation measures which, the technical people conclude from an examination of the soil's capabilities on each farm to which a contract applies, should be placed in effect upon that property.

Mr. WHITTEN. In that program, I asked you for the average. Now I would like to have minimum and maximum.

Mr. PETERSON. There is no minimum in money, only in time. Contracts cannot be executed for less than 3 years nor more than 10 years. The maximum obligation for any contract is $25,000 for a full 10 years. All contracts have ceilings obtained by multiplying $2,500 times the specific number of years in the contract.

Mr. WHITTEN. In the ACP program, the Federal Government limits itself to not more than about 50 percent, frequently less than that. In the Great Plains program the Government pays 80 percent?

Mr. PETERSON. With respect to some practices.

Mr. WHITTEN. We are asked to let you go ahead with an enlargement of this program. Should we pull the payment back to the ACP level? And if the Congress, in its lack of wisdom, in my opinion, should further reduce the limitation on ACP payments, I think we would be working against even those who want to change it. Shouldn't that same thing be done in any new contracts that you might be authorized to commit yourself to with regard to the Great Plains?

Mr. PETERSON. This might be desirable. We ourselves changed our limitation, administratively. We had executed, so I found out, some fairly sizable contracts in terms of dollars.

Mr. WHITTEN. Do you, offhand, remember about the approximate size?

Mr. PETERSON. One contract, if I remember correctly, for $106,500.

Mr. WHITTEN. Did that come because of volume of land, the large acreage?

Mr. PETERSON. Largely, yes. There were 71,500 acres involved which included conversion of cropland to grass, livestock water, and range improvement practices. There was another contract of $45,400 covering 22,270 acres which were largely irrigation practices, that were authorized at that time. There was insufficient limitation on the irrigation practices, and, as soon as I learned about it, I asked for a field investigation, which we had. Before the field investigation was initiated, I ordered a limitation on the amount of money in any one contract that could be expended for irrigation practices, as well as a ceiling for all contracts.

IRRIGATION PRACTICES

Now, you may inquire as to why irrigation practices are authorized, coming back to Mr. Michel's point of view, that these types of programs should not be used to up production at a time when we have too much. What we are trying to do in that program is to change the farming pattern and the pattern of land use, getting at the Dust Bowl problems out there, as distinguished from the emergency programs that we had some years ago. Where irrigation is used as a means to up the production of forage, as reserve feeds, to sustain a livestock production, in order to use the adjacent grazing land; irrigation in some situations becomes the key to achieving the changed land use which is sought.

So we did put a limitation on the irrigation practices, not to exceed $2,500, or one-quarter of the amount of the contract, whichever is the larger.

Mr. WHITTEN. The same limitation you have in this other?

Mr. PETERSON. It isn't quite, because the ACP limitation of $2,500 is the amount of ACP cost sharing that any one participant can draw down in any one year. The limitation upon the Great Plains program of $2,500 applied only to the irrigation practice.

Mr. WHITTEN. The particular practice.

Mr. PETERSON. I don't think anyone would know as to how much it would cost to use ACP to accomplish a full contract under the Great Plains as distinguished from what it would cost under the present method. I presume it could be calculated within reasonable limits.

ACP PRACTICES APPLICABLE TO PARTICULAR AREAS

Mr. WHITTEN. I think you should pursue this because there is a long record on it, most of the complaints about limestone that I have had come from areas where they don't need it. Through the years I have been convinced by testimony, by far the most important practice for the New England and other country States is lime. I have been convinced of that. I do not want to foreclose you. But if we believe that local communities selected practices which are most badly needed in the area, and if it is a national program, I think we run into the question, if we are going to eliminate that which is of prime importance to

an area, in effect you have just eliminated them from the national program, and you have gotten away from the democratic principle in letting an area with a right to participate in the program determine what is most essential to their area.

I wouldn't be a party to eliminating the New England States, including New York.

CERTAIN PRACTICES NECESSARY FOR NORMAL FARM PRODUCTION

Mr. PETERSON. I think my only point of disagreement with that, if there is in fact disagreement, would revolve around this, as to whether or not, in order to get participation, there should be included in a program for conservation, where Federal moneys are involved, a wide enough offering of practices, so that everybody can participate, or whether the practices should be confined to achieving the installation of conservation practices which would not otherwise be achieved.

With respect to lime, I think any one knowledgeable in the field of agriculture will agree that where it is needed, lime is one of the most important agronomic practices there is; but, again, if you will pardon the personal reference, going back to my own experience, I was compelled to lime to get pasture production, to get hay production, to develop feed for my cows. I think that was my responsibility, not the Federal Government's.

Mr. WHITTEN. We are not questioning the responsibility. I say every one of these farmers ought to do it, anyway; but when these programs started, he wasn't doing it, and we were about to go down the Mississippi River, as a Nation. There is no question that they ought to do it. They ought to do everything that is in here.

Mr. PETERSON. I don't go that far.

Mr. WHITTEN. I don't feel any obligation to help any farmer with his land. I mean that. I think I should, however, look after my children by seeing that the job is done; and I try to the fullest extent I can, and I try to use the best method I can find to get the most work done by the most people at a minimum cost.

So far as I am concerned, I am convinced that this is the best vehicle I have seen to do it.

Mr. PETERSON. I will agree that cost sharing is an excellent tool. I think again our differences, if differences there are, is whether or not there are certain things that ought to be done that farmers could not reasonably be expected to do in their own self-interest entirely with their own money, as distinguished from those things which they should be expected to do entirely with their own money.

This gets to a matter of judgment as to practice. There is room for differences.

Mr. WHITTEN. I don't think that we differ there. I don't think that we differ with your statement, except you just carry it half the distance. You say that which you ought to do and reasonably count on his doing, but history shows he does not. It is a question.

Mr. PETERSON. Maybe I should have said that which a farmer has to do in order to farm. I did, to get my production, to feed my cows, and to produce my hay.

Mr. WHITTEN. I will say this, that the men around this table are the best farmers I ever knew, because, like me, they learned early to get a salary on the side, by far the best way to farm. On your side of the table and on this side, too, they learned that early.

### RELATION OF ACP PRACTICES TO END-PRODUCT QUALITY

Mr. MARSHALL. Several years ago, our experiment station at the University of Minnesota made some studies concerning the benefit of lime and phosphate in the matter of bone structure and quality of livestock products. In connection with the ACP program, I wonder if any consideration has been given to the improvement of quality food products because of the use of lime and phosphate in certain areas?

Mr. PETERSON. Not as far as I know, Mr. Marshall. We have not attempted, to my knowledge, to look at the ACP program in other than its impact upon conservation, without regard to the quality of the end product.

I appreciate, as you do, that there is a relationship between the quality of end product and the nutrition of the forage that animals eat.

Mr. MARSHALL. This could be a more important element as far as the New England area is concerned, where they are supplying milk to a heavily populated area in the East; would you not say it was important?

Mr. PETERSON. Mr. Marshall, I don't know. As a dairyman, or ex-dairyman, I should say, that where the nutrition of milk animals is deficient, my reading leads me to the conclusion that the animal draws upon its own bone structure. This means that the animal may have a shorter productive life, but so far as I know there is only a limited relationship to the nutrition of the cow and the composition of the milk from that cow. What the impact would be upon muscle tissue, I don't know. The people who are experts in that field would have to study it.

Mr. MARSHALL. Because of the short lifetime of the cows in that area, it could add appreciably to the cost.

Mr. PETERSON. This is, of course, true. The longer milking life the cow has, the less costly the total dairy operation.

Mr. MARSHALL. Thank you, Mr. Chairman.

Mr. WHITTEN. Thank you, Mr. Peterson. This whole question seems to be one that never gets resolved, and we go into it periodically.

We turn now to the general statement of Mr. Koger, who is actually in charge of the operation of this program. Do you have a general statement, Mr. Koger?

Mr. KOGER. Yes, Mr. Chairman.

Mr. WHITTEN. All right.

### GENERAL STATEMENT OF ADMINISTRATOR, AGRICULTURAL CONSERVATION PROGRAM SERVICE

Mr. KOGER. Mr. Chairman and members of the committee, it is a pleasure to again appear before your committee to discuss the budget for the agricultural conservation program. The 1961 budget contains a request for funds needed for the 1960 program, and a request for authority to plan and start a 1961 program. It has been only a

few weeks since the 1959 agricultural conservation program was completed. While we do not have complete reports on it, preliminary indications are that the achievements are substantially similar to those of the 1958 program.

### LAND-USE ADJUSTMENTS

As you know, the objectives of the agricultural conservation program include restoring and improving soil fertility, reducing erosion caused by wind and water, and conserving water on land. In reaching these objectives farmers are making land-use adjustments of importance nationally as well as to them individually. It is the Department's policy that the ACP should give attention to those conservation measures which are of major importance to farmers in making a transition from cropland to grass or trees and in keeping in protective cover, land which otherwise might be shifted to a more intensive use.

Grass, legume, and three plantings, and water-storage practices encourage and help bring about needed changes in land use. These practices also provide important benefits for fish and wildlife. In 1958, ACP helped farmers and ranchers establish 2.3 million acres of permanent grass and legume cover, plant 324,000 acres of trees, and construct over 62,000 water-storage reservoirs. Much of this was on cropland previously producing at a more intensive level. The acreage of such ACP practices for the latest 5-year period (1954–58) for which we have data available, amounts to 22 million acres. The land shifted into conservation cover each year adds to the already existing acreage shifted away from intensive production, as well as to the total conservation accomplishments.

### RURAL DEVELOPMENT

The ACP is contributing to the rural development effort by giving increased attention to the conservation problems of low-income farms. Some of the specific actions taken by State and county committees are: In the distribution of ACP funds among counties, States have given special consideration to the needs of low-income counties. Operating procedures have been developed to earmark funds for conservation practices most needed on small farms. Procedures have been developed to give first consideration to requests for farms on which little or none of a needed practice already has been established. Rates of cost-sharing have been increased for selected practices that need to be initiated on low-income farms.

Particular emphasis has been given to helping farmers better understand how ACP cost-sharing assists in rural development. A leaflet that ACPS has issued illustrates this effort.

### EMERGENCY CONSERVATION MEASURES

Public Law 85–58 authorizes cost-sharing for emergency conservation measures necessary as a result of damage to farmlands by natural disasters. Of the $24 million appropriated for this purpose, about $8.7 million has been used or allocated under the 1956 to 1960 programs, for designated counties in 14 States: Alaska, Arkansas,

Indiana, Kansas, Kentucky, Louisiana, Minnesota, Missouri, New Mexico, Oklahoma, Oregon, Puerto Rico, Texas, and Washington.

In addition, some of the regular ACP funds are used each year to share costs of practices for the treatment of critical new conservation problems.

### TECHNICAL SERVICES FOR ACP PRACTICES

As far as technical services for ACP practices are concerned, the appropriation acts authorize the transfer of ACP funds to other agencies for the services of their technicians in formulating and carrying out the ACP. About $7 million was transferred to the Soil Conservation Service, and $300,000 to forestry agencies for the 1959 program.

For 1960, new procedures are in effect and appear to be working smoothly. Current estimates are that about $7.4 million of 1960 ACP funds will be transferred to the Soil Conservation Service and $297,000 to other agencies.

### SMALL COST-SHARE INCREASE PROVISION

There is a small cost-share increase provision. Section 8(e) of the Soil Conservation and Domestic Allotment Act requires that cost-share payments under $200 be increased by specified amounts. We have felt for many years, and still feel, that this provision should be eliminated from the act. A bill, H.R. 6094, is now pending before the House which would repeal this requirement. As Mr. Peterson stated, the proposed advance authorization for 1961 assumes that this requirement will be eliminated.

The amount of funds required for this purpose for the 1958 program was $9.7 million, and the amount reserved for these increases in 1960 is almost $10.5 million. Because so many of the ACP payments are under $200 this provision is applicable to a large majority of all payments. It does not serve to the advantage of the small or low income farmer as it is intended to do. Under the 1958 program 75 percent of all participants received these automatic increases.

### NATIONAL INVENTORY OF SOIL AND WATER CONSERVATION NEEDS

The Department is now engaged in making an inventory of the soil and water conservation needs of each county and State. Substantially all of the fieldwork has been completed and the information is now being reviewed and prepared for summarization and publication. Because of the magnitude of this effort, some time yet will be required before complete national data from the inventory will be available. The new data will not be used in distributing ACP funds among States for the 1961 program, but it is assumed the Congress will want us to take these new figures into consideration when 1962 allocations are determined.

It is not expected that the new inventory figures will result in very great changes in the 1962 and later year State distribution of ACP funds. The formula for distributing ACP funds on the basis of conservation needs is contained in section 15 of the Soil Conservation and Domestic Allotment Act. It provides that the proportion allocated to

any State shall not be reduced more than 15 percent from the State's proportionate share of the total funds available for the preceding program. Thus, drastic changes in State distribution will not occur.

In addition to using the inventory in the distribution of ACP cost-sharing funds, we expect that it will be very helpful in program planning and execution both at the State and county levels.

### 1960 PROGRAM

The 1960 national agricultural conservation program, which was approved July 17, 1959, essentially continued the 1959 national program provisions. The only changes were those needed to provide current dates, and to carry out legislative provisions with regard to initial county allocations and changes from 1957 or 1958 county programs which were contained in the 1960 fiscal year appropriation act for the Department. Because of the few changes, a complete 1960 National Agricultural Conservation Program Bulletin was not printed. Instead, an abbreviated program, listing the changes from the 1959 program, was printed.

### PROPOSED 1961 PROGRAM

The budget proposes $100 million as the authorization for the agricultural conservation program for 1961.

The total of all the conservation efforts proposed in the budget for 1961 is very substantial. Therefore, a $100 million authorization for the 1961 ACP, while less than the current program, should make it possible for farmers to deal effectively with the more necessary conservation problems.

It is proposed to continue for the 1961 national agricultural conservation program broad authorities which will permit the ACP development groups to formulate effective State and county programs which the most up-to-date research and practical experience in their own areas indicate are needed. However, there are a few changes in the national program which we believe will result in more effective use of program funds. These changes should be made regardless of the size of the authorization.

The restrictive changes may be classified in two groups—one which represents basic policy changes, and the other which represents changes to obtain better understanding and compliance with present national policies.

In the first group, policy changes, there are three types of changes needed, as follows:

### POLICY CHANGES

One, it is proposed to discontinue the offering of cost-sharing for land clearing, removal of stone walls and hedgerows, and installation of fences, as components of approved practices.

Cost-sharing for these measures has been available only in situations where these measures are needed in conjunction with other measures to meet a conservation problem. Frequently, however, the cost of these measures is high in comparison with the conservation

benefits resulting from their application. We believe that the funds which otherwise would be used for these measures can be more effectively used for other measures which will provide relatively greater conservation benefits. We do not believe that the discontinuance of the offer of cost-sharing for these measures will materially reduce the performance of the conservation practices to which they have been related.

Two, it is proposed to offer cost-sharing for rock phosphate under the same conditions which apply to the offer of cost-sharing for other phosphate fertilizers.

Currently, costs may be shared for rock phosphate applied to all legumes and grasses grown in an established rotation on the farm with small grains and row crops, even though there is no increase in the acreage of legumes and grasses on the farm. Costs are being shared for other phosphate fertilizers only when there is an increase, and then only on the increased acreage of legumes and grasses.

We do not believe that there is sufficient difference in the conservation and production benefits of these materials to justify such a distinction, nor do we believe that we should make a more liberal offer of cost-sharing for fertilizers at this time. The principal effect of this change would be that rock phosphate applied on normal seedings of vegetative cover in crop rotation would no longer be eligible for ACP cost-sharing. This would place rock phosphate on the same basis as other fertilizers under the program.

Third, at the present time cost-sharing for most drainage and and irrigation practices is limited to their application on land which has been used for agricultural production or has been under irrigation for at least 2 of the last 5 years. It is proposed to increase this to 4 out of the last 5 years.

The effect of this change would be to increase the minimum period for which land must have been devoted to the production of cultivated crops or crops normally seeded for hay or pasture in the area and the period for which an irrigation system must have been in use in order for the land or system to be eligible for cost-sharing for these practices. This change would help to eliminate criticism, especially that from wildlife interests, in connection with drainage or potholes, and would further implement the program policy of not using program funds to bring more land into agricultural production. This change would also eliminate, or at least substantially reduce, the likelihood that a farmer would install a poor irrigation system with the expectation of receiving ACP cost-sharing for reorganization measures carried out within a short period following the installation of the system.

CHANGES TO OBTAIN BETTER UNDERSTANDING AND COMPLIANCE WITH PRESENT POLICIES

The changes to obtain better understanding and compliance with present national policies are:

One, it is proposed to require more careful consideration of the amount of fertilizer needed to establish green manure and cover

crops, and to approve cost-sharing only for the minimum quantity of fertilizer needed for successful establishment of the eligible cover. If applications larger than needed for that purpose are cost-shared, substantial benefit from the additional fertilizer may carry over to the depleting crops which normally follow.

Two, it is proposed to require as a condition of eligibility for cost-sharing for the application of liming materials, gypsum, and other sulphur-bearing materials, that eligible grasses and legumes occupy the land for at least two growing seasons. Sometimes land is returned more immediately to other crop use, and the conserving crops do not receive the major benefit of the conservation materials.

Three, it is proposed to approve cost-sharing for wells for livestock water and cost-sharing for deferred grazing of rangeland, only after receiving individual county or area recommendations and justifications.

This will not prevent the use of these practices in areas where there is a substantial need for them to solve conservation problems. It is believed that this change would help to limit cost-sharing for livestock wells to those cases where there will be less question as to whether the primary purpose of the well is to meet the conservation problem involved. This change would tend to encourage the construction of ponds for livestock water rather than wells for livestock water. By impounding runoff water, livestock water ponds provide additional conservation benefits over and above those which are provided by livestock wells.

These changes have been discussed with many State committees and others in areas where the changes would apply. There has been little objection to the proposed changes and we believe that they should be adopted, even if there is some objection and regardless of the level of the program authorized. Actually, these changes have already been incorporated in many of the State and county programs. Experience indicates that these changes cannot be fully accomplished unless they are incorporated in the national program.

While I believe that we have an excellent program, probably the best we have ever had, I also believe that these changes are needed to strengthen the program and to maintain farmer and nonfarmer respect and support for it. I do not believe that we will serve the best interest of farmers unless we take actions that are necessary to keep the program in a setting where it can be fully supported and justified on the basis of its conservation accomplishments.

In addition to the above changes the State and county development groups will need to give careful attention to their program practices, provisions, and rates, and where appropriate, make changes from past programs in light of a reduced program level. They will need to eliminate or reduce cost-sharing for practices that contribute most to early increases in agricultural production. First consideration for assistance under the 1961 program will need to be given to problems which, if not solved without undue delay, will result in loss of soil and water resources.

Mr. Chairman, if you or other members of your committee have any questions, we shall be glad to try to answer them. Also, we shall welcome any suggestions or comments that you may have to help us concerning our responsibilities for the agricultural conservation program.

Mr. WHITTEN. Thank you, Mr. Koger.

NECESSITY FOR CHANGES AT NATIONAL LEVEL

According to these proposals that you have to restrict the handbook availability, you are asking the Congress to go along with you in writing that appropriate addition here at the departmental level in the handbook, are you not?

Mr. KOGER. Yes, sir. We are asking your permission to make these changes.

Mr. WHITTEN. You have to do that because you are unable to sell it to many States, because if the State committees felt this was necessary, they could take appropriate action on their own, could they not?

Mr. KOGER. Yes, sir; they could make the change, provided the county committees agreed to it.

Mr. WHITTEN. Where these situations existed, if the county committee felt that you were right, they have full right now to limit the county to that?

Mr. KOGER. Yes, sir.

Mr. WHITTEN. If the county is agreed with that, the State could put these into effect.

Mr. KOGER. That is true.

Mr. WHITTEN. Since you have been unable to sell your views to those who actually participate, you want Congress to go along with you, dictating from Washington what they can do?

Mr. KOGER. Mr. Chairman, we cannot make the changes unless you do agree to them.

Mr. WHITTEN. But you are asking our help so that you in turn can cause the counties and States to do that which you have been unable to convince them they should do, in some cases.

Mr. KOGER. Mr. Chairman, we have found very little objection to making these changes throughout the country.

Mr. WHITTEN. All right. You don't need any compulsion, then. Just use the power of persuasion. If you have sold it, you don't need anything in the law requiring it.

Mr. KOGER. We find that it is very difficult to get these changes made nationally.

Mr. WHITTEN. The easy way is the dictator's way. You just say: You have got to do it. Is that what you are asking? You want power to tell them "You have got to do it"?

Mr. KOGER. We are asking your concurrence in making the changes from the national level.

Mr. WHITTEN. So that you will have the power to tell them they have got to. That is what the end result would be, isn't it?

Mr. KOGER. Yes.

Mr. WHITTEN. If we go along with you, you are going to tell them they have to.

Mr. KOGER. We would make the changes at the national level.

Mr. WHITTEN. So they have to.

Mr. KOGER. Yes, sir; they would have no alternative.

Mr. WHITTEN. But to conform.

Mr. KOGER. True.

METHOD BY WHICH PRACTICES ARE SELECTED

Mr. WHITTEN. New England is as far removed from my home county as it is possible to be, and yet some sections of my home county are not in need of lime, but I have some very erosive land in part of my home county, but my district greatly differs. What is badly needed in the way of conservation in one county is not so essential in another; but if, in my home county, we didn't need something they needed in Tippah County, I think it would be ridiculous for you to say that: No, you have to take practices that are important to my county. And I wouldn't take any such view.

But, for the record, the strength of this program is that you elect community committeemen, do you not, a democratic election? They meet and select the county committee by the democratic means of election. Is that right?

Mr. KOGER. That's true.

Mr. WHITTEN. The county committee then selects practices, as good Americans, that they think are essential to the conservation of soil in that county, and they must show some wisdom in it, because the farmer has to put up his land and his labor and his money, in addition to whatever the practice would contribute toward the end job.

So, if it is not something that is worthwhile to the farmer participant, to the degree that the farmer puts up an equal amount of money in costs, they have made a bad choice.

Then, with all the counties in the State working up through this community to the county, the practices that they think are important in the various counties, they go to the State committee The State committee goes over those practices that are advocated, and brings them in line with those that they think are most important. Then they send it to the Department of Agriculture, the various States in the Union, do they not?

Mr. KOGER. True.

Mr. WHITTEN. And the request from New England, as to what is needed in their area, may frequently differ from what comes from Illinois as to what they need in their area?

Mr. KOGER. Mr. Chairman——

Mr. WHITTEN. Let me follow this through. Is that the way it is handled? When these various States send in to you their recom-

mendations, don't they need practices built up by the farmer participants, who have to put up their labor? Don't they differ State by State, because of different needs in the particular States?

Mr. KOGER. Yes, sir.

Mr. WHITTEN. And then you try to have a broad enough program so that each State will find in your handbook the things that they feel will help meet conservation needs in that State as determined by the people in that State who have to put up their money and their labor. Is that right?

Mr. KOGER. Yes, sir.

Mr. WHITTEN. Then that catalog goes back, after you work it up, the State committee then approves from your catalog the practices that they think should be available to the farmers in that State. Is that correct? Follow me. I just want this for the record.

Mr. KOGER. That's right.

Mr. WHITTEN. Then, when it goes out to the counties, the county committee can approve those practices that they think are important and beneficial in that county, is that correct?

Mr. KOGER. Yes.

Mr. WHITTEN. The farmer selects the one he is willing to do, and puts up his sweat and his money. You tell me how letting you dictate from Washington could improve the system we now have.

ELIMINATION OF CERTAIN COMPONENTS OF PRACTICES

Mr. KOGER. We are not proposing to eliminate practices. We are proposing to keep the national program broad and flexible, whereby the States and counties can formulate the program——

Mr. WHITTEN. Wait a minute—that you think they need.

Mr. KOGER. That they need.

Mr. WHITTEN. Let me ask you this question: If we approve, and you make these changes, can the farmers in those counties continue to do the things they have been doing?

Mr. KOGER. No, sir.

Mr. WHITTEN. All right. If that isn't control from Washington, what is it?

Mr. KOGER. We are not proposing to eliminate practices; we are proposing to eliminate some components of practices, such as——

WELL-DIGGING PRACTICES

Mr. WHITTEN. You are going to strike out wells.

Mr. KOGER. They could come in as a county practice in areas of the country where needed. And rather than have it in the national program, we will let that county come in with a special practice for wells.

Mr. WHITTEN. Well, let's see, if you have it in the national catalog, you wouldn't figure a State that didn't need it would ever bother doing it, do you?

Mr. KOGER. We have a tremendous amount of pressure to include the well practice where not needed for conservation.

Mr. WHITTEN. By whom?

Mr. KOGER. Various interests.

Mr. WHITTEN. Farmers?

Mr. KOGER. Probably farmers—and well diggers.

Mr. WHITTEN. This goes to the farmer, doesn't it? Do you pay any of this out to anybody but farmers?

Mr. KOGER. It does go to the farmers but other people are interested in farmers using this practice in order to get business.

Mr. WHITTEN. We will strike the name out of the record, if you will name for us the well-digging companies that are interfering in the operation of this program.

Mr. KOGER. I would have to be general.

Mr. WHITTEN. You are just talking about what could happen; you don't know any examples?

Mr. KOGER. Not specifically.

Mr. WHITTEN. You are just talking about how it could happen, but, be that as it may, I have described a democratic process, and how it is built up, and how it was selected. You will agree with that, that any farmer, Mr. Michel, Mr. Horan in his district, Mr. Marshall and Mr. Natcher—and if there is any in Mr. Santangelo's district in New York City—but if any farmer selects a poor practice and if he is foolish enough to put up his own money for a poor practice, and his own labor, he made his own choice passing up good ones.

Mr. KOGER. Yes sir.

### RELATION OF COUNTY ACP EMPLOYEES TO FEDERAL EMPLOYEES

Mr. WHITTEN. I have had personally, and most Members of the Congress have had, requests from various employees of the ACP that they be given somewhat equal treatment with other full-time Federal workers.

For the record, how long have we had the ACP program? In other words, how long have many of these people worked? How long has your program been in existence?

Mr. KOGER. Twenty-four years.

Mr. WHITTEN. In that time, your full-time county workers have been full-time workers of the Federal Government, have they not?

Mr. KOGER. I think Mr. Manwaring should answer that.

Mr. WHITTEN. I would like it for the record, Mr. Manwaring, if we might. In other words, at the county office level, there are full-time office employees that maintain——

Mr. MANWARING. They are full-time employees, yes, sir.

Mr. WHITTEN. Paid directly from the Federal Government?

Mr. MANWARING. Yes, sir, that is, they are paid from accounts set up or replenished from Federal funds.

Mr. WHITTEN. Am I correct that they are not included in your Federal health program?

Mr. MANWARING. That's correct.

Mr. WHITTEN. The Federal retirement program or Federal insurance program?

Mr. MANWARING. Yes, sir; that's correct.

Mr. WHITTEN. They are not under civil service, and not technically Federal employees, but they are full-time employees, and their program has been going on for 24 years.

Now, who, insofar as the Government is concerned, who are they held to be the employees of? They work for the Government, take orders from the Government, and draw their salary from the Federal Government; but now, in the nature of things—where are they classified?

CLASSIFICATION OF COUNTY COMMITTEES

Mr. MANWARING. The county committees are classified as Federal instrumentalities, doing work for the Federal Government, but they are not classified as Federal employees. The law prescribes that the programs will be administered by committees, State and county committees at the State and county levels.

Mr. WHITTEN. So they are really employed by the county committees?

Mr. MANWARING. And by the State committee.

LEGISLATION REQUIRED TO PUT COUNTY ACP COUNTY EMPLOYEES UNDER FEDERAL BENEFITS

Mr. WHITTEN. Could we have in the record the total number of such employees? And would it require legislation for these employees to benefit from these other Federal programs, would it not?

(The information requested is as follows:)

The total number of full-time employees of ASC county committees working on all programs as reported in December 1959 is 14,905.

Mr. MANWARING. For them to benefit by the specific programs we have at the present time, yes, sir; that is true.

Mr. WHITTEN. I understand. I know I have introduced a bill to make some start in this direction. Numerous others have, which are pending before the legislative committees, which will have to act before anything could be done.

SALARIES OF ASC COUNTY EMPLOYEES

In one area here, it does strike me that the Federal Government is in a position to do something about it. That is the matter of keeping salaries, of these full-time Federal workers, in balance with other Federal employees, full time. Tie it back, of course, to their general qualifications and education and training.

A few years ago this committee recommended, and Congress approved, a $3 million increase to try to bring these employees up to a proper level—personally, I was disappointed to learn later that these funds were distributed at the Federal level to States, based on the schedule of rates within a State, and that no attention, if I under-

stand it correctly, was given to the workload or to the relatively high administrative costs in some of the States that got the money, and without regard to the total number of employees.

Mr. MANWARING. That is not correct, Mr. Whitten.

Mr. WHITTEN. I say that is my understanding of it. You can make your statement. I certainly don't want to foreclose you from it.

But now, it is within the purview of the State committee and the county committee to take the administrative funds and by not filling vacancies and holding the number of employees down, I am not trying to fire anybody, but not filling vacancies, so as to make the administrative money go further, so as to keep these employees without additional total cost at the more comparable rate with that received by other employees. Is that within their power?

Mr. MANWARING. Mr. Whitten, there are limitations on the grades of different employees. For example, the county office managers are graded from what we call a CO–7 to a CO–10.

Mr. WHITTEN. Who did that grading?

Mr. MANWARING. We did.

Mr. WHITTEN. In the Department? They are not under civil service.

Mr. MANWARING. Excuse me just a minute. We set up the grades. We set up the workloads, the standards which determined whether the county came within that grade or did not, and then the State committees working in the States determined which counties had that workload and, therefore, came within the grade established for the workload. It is a workload basis completely.

Mr. WHITTEN. When did you set that up?

Mr. MANWARING. We set that up in the first year you folks authorized this increase of $3 million for upgrading county office employees. This was the first step we took, was on office managers.

Mr. WHITTEN. May I say for the record that I supported personally on this committee this increase, and the subcommittee approved it, and it was a complete surprise to me to learn after the fact that the Department had set up somewhat of a synthetic civil service of its own in this field, a complete surprise to me to find out afterward it did.

From studying the allocation of funds, I am convinced personally that it did result in paying a premium to those States that had the most employees, and penalized those States that held overall administrative costs very low, by having better people, more competent people, and fewer of them at better pay.

What would we have to do on this committee, if the committee should agree to give some leeway to the various States and the State offices and county offices, where they could hold down the number of people and pay them more in line with what other Federal workers get? What could we do?

Mr. MANWARING. Mr. Whitten, we think we have done exactly that. When you gave us the authorization we told you, when we came up here and asked for it, what we were going to do. We have that in the

record. We did precisely what we told you we were going to do. We were going to set up the workload; we were going to establish grades according to workloads; we were going to pay these people according to the level of the work they were doing and that is what we did.

Now, it is true that in some States where they were at a high level already, there was not much increase given to those county office managers in that State. In other States, where they were way low, they were brought up according, again, to the workload established for those counties.

Mr. WHITTEN. Is it not a fact, where they had the relatively high rates of pay, that they had fewer employees, and the overall cost of administration was lower than many of these others?

Mr. MANWARING. I cannot answer that categorically. I would have to check into it to make sure that is true; but I don't think so.

Mr. WHITTEN. Could we have here in the record, by States, the cost of administration of this program for the last 7 or 8 years?

Mr. MANWARING. I think we can get that for you.

(The information requested is as follows:)

## ASC County Committees, Agricultural Conservation Program

*Expenditures, by fiscal years, 1952–59*

| State or territory | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 |
|---|---|---|---|---|---|---|---|---|
| Connecticut | $45,173 | $59,700 | $49,161 | $46,605 | $48,035 | $41,903 | $43,268 | $43,742 |
| Delaware | 23,362 | 23,228 | 19,907 | 25,614 | 25,685 | 22,019 | 25,187 | 30,411 |
| Maine | 108,998 | 114,627 | 107,040 | 109,157 | 109,962 | 104,225 | 105,996 | 114,564 |
| Maryland | 138,865 | 144,844 | 119,618 | 115,822 | 115,013 | 104,411 | 115,738 | 116,762 |
| Massachusetts | 69,595 | 73,867 | 80,126 | 84,230 | 90,171 | 89,509 | 92,373 | 101,087 |
| New Hampshire | 63,274 | 60,226 | 66,122 | 66,889 | 65,447 | 69,808 | 72,570 | 72,969 |
| New Jersey | 92,617 | 88,598 | 79,349 | 75,798 | 76,4 8 | 71,229 | 69,639 | 77,951 |
| New York | 432,935 | 410,260 | 416,483 | 432,461 | 445,897 | 442,735 | 445,145 | 498,792 |
| Pennsylvania | 329,666 | 328,373 | 322,034 | 323,546 | 341,510 | 363,923 | 405,778 | 406,082 |
| Rhode Island | 17,338 | 18,263 | 15,327 | 15,336 | 15,499 | 16,248 | 19,034 | 17,868 |
| Vermont | 98,278 | 49,254 | 99,555 | 102,603 | 104,587 | 98,940 | 109,244 | 113,779 |
| Virginia | 269,084 | 325,825 | 327,569 | 308,482 | 315,284 | 260,508 | 324,810 | 355,692 |
| West Virginia | 218,409 | 222,451 | 197,137 | 194,656 | 195,670 | 205,495 | 228,068 | 246,807 |
| Northeast area | 508,583 | 581,089 | 436,690 | 473,498 | 469,421 | 283,153 | 376,849 | 375,322 |
| Alabama | 571,891 | 650,742 | 478,341 | 559,036 | 576,318 | 468,214 | 513,515 | 573,526 |
| Arkansas | 240,324 | 279,678 | 252,543 | 263,590 | 273,515 | 234,529 | 248,544 | 267,530 |
| Florida | 726,271 | 741,068 | 603,335 | 701,231 | 713,547 | 712,303 | 721,986 | 847,287 |
| Georgia | 418,357 | 442,029 | 360,376 | 402,540 | 395,425 | 353,413 | 409,714 | 395,396 |
| Lo isiana | 535,549 | 545,669 | 436,974 | 488,513 | 492,353 | 442,371 | 480,134 | 522,015 |
| Mississippi | 600,158 | 662,822 | 650,412 | 621,422 | 665,326 | 581,047 | 758,076 | 647,507 |
| North Carolina | 315,659 | 360,606 | 247,902 | 261,162 | 253,565 | 233,413 | 264,484 | 280,022 |
| South Carolina | 410,757 | 558,895 | 506,635 | 551,041 | 542,248 | 458,231 | 544,293 | 559,901 |
| Tennessee | 825,109 | 757,182 | 536,424 | 604,627 | 603,125 | 576,806 | 605,278 | 604,852 |
| Southeast area | 567,621 | 541,838 | 476,129 | 470,508 | 478,296 | 443,691 | 578,873 | 568,235 |
| Illinois | 755,680 | 699,362 | 554,604 | 604,629 | 621,756 | 620,591 | 624,214 | 618,786 |
| Indiana | 632,060 | 684,986 | 686,733 | 705,497 | 756,507 | 668,855 | 851,541 | 931,384 |
| Iowa | 583,205 | 557,916 | 405,053 | 423,372 | 400,827 | 341,895 | 415,340 | 407,126 |
| Kentucky | 811,216 | 787,398 | 684,410 | 823,241 | 874,720 | 765,758 | 920,019 | 980,391 |
| Michigan | | | | | | | | |
| Missouri | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Ohio | 518,943 | 506,693 | 478,740 | 507,186 | 439,844 | 402,020 | 509,349 | 416,423 |
| Wisconsin | 668,800 | 708,229 | 548,669 | 562,466 | 553,710 | 438,649 | 567,402 | 629,743 |
| Midwest | | | | | | | | |
| Arizona | 81,636 | 69,633 | 71,623 | 69,144 | 71,959 | 66,623 | 82,488 | 87,819 |
| California | 449,823 | 503,654 | 480,182 | 421,916 | 447,358 | 361,946 | 383,578 | 407,890 |
| Colorado | 291,288 | 268,149 | 309,634 | 342,234 | 336,001 | 274,067 | 281,533 | 299,892 |
| Kansas | 536,453 | 508,215 | 429,688 | 484,838 | 499,577 | 434,896 | 536,665 | 567,777 |
| Nevada | 54,191 | 51,861 | 51,923 | 52,346 | 65,465 | 63,194 | 67,914 | 67,898 |
| New Mexico | 202,345 | 170,821 | 185,228 | 181,072 | 180,632 | 147,688 | 162,533 | 177,105 |
| Oklahoma | 861,715 | 911,453 | 684,809 | 674,371 | 674,622 | 532,348 | 561,794 | 575,226 |
| Texas | 2,151,996 | 2,281,400 | 1,788,284 | 1,922,385 | 1,942,653 | 1,355,531 | 1,603,220 | 1,598,787 |
| Utah | 199,355 | 157,123 | 156,119 | 144,571 | 147,154 | 128,063 | 143,246 | 143,189 |
| Southwest area | | | | | | | | |
| Idaho | 282,234 | 282,134 | 226,687 | 222,134 | 206,885 | 178,189 | 195,068 | 210,672 |
| Minnesota | 838,798 | 742,258 | 626,596 | 569,866 | 563,079 | 407,666 | 541,917 | 585,947 |
| Montana | 276,966 | 275,639 | 251,553 | 244,075 | 219,983 | 200,808 | 256,785 | 274,956 |
| Nebraska | 607,070 | 637,794 | 440,551 | 511,320 | 476,033 | 392,007 | 456,349 | 425,223 |
| North Dakota | 362,818 | 342,133 | 363,556 | 354,209 | 368,435 | 311,124 | 328,618 | 357,993 |
| Oregon | 209,593 | 210,700 | 227,899 | 223,058 | 238,860 | 204,329 | 224,989 | 234,566 |
| South Dakota | 480,578 | 499,837 | 459,630 | 413,117 | 411,655 | 373,331 | 394,595 | 421,306 |
| Washington | 297,338 | 283,070 | 265,050 | 269,053 | 260,950 | 247,130 | 290,489 | 258,599 |
| Wyoming | 153,845 | 144,844 | 150,404 | 156,115 | 170,016 | 186,317 | 190,792 | 190,745 |
| Northwest area | | | | | | | | |
| Total | 19,836,819 | 20,302,436 | 17,412,815 | 18,180,552 | 18,355,998 | 15,681,149 | 18,151,034 | 18,707,542 |

Mr. WHITTEN. I want the comparison between the States. Could we have a comparison of the rates of pay, since we are having this recurring problem, last year this committee recommended, and the Congress approved, 10 percent, the amount of money which we expressed the hope would be used to give 10 percent increase, so as to bring these employees up to something of a fair level, along with other Federal workers in the same kind of work with the same qualifications.

(The information requested is as follows:)

*Average daily salary paid to ASC county committee employees as reported in December 1959*

| State | Average daily salary[1] | State | Average daily salary[1] |
|---|---|---|---|
| Connecticut | $13.35 | Kentucky | $11.74 |
| Delaware | 12.36 | Michigan | 13.86 |
| Maine | 12.67 | Missouri | 12.54 |
| Maryland | 14.00 | Ohio | 14.48 |
| Massachusetts | 13.36 | Wisconsin | 11.41 |
| New Hampshire | 13.42 | Arizona | 10.38 |
| New Jersey | 14.44 | California | 13.45 |
| New York | 13.67 | Colorado | 13.36 |
| Pennsylvania | 13.72 | Kansas | 12.76 |
| Rhode Island | 12.85 | Nevada | 15.87 |
| Vermont | 12.93 | New Mexico | 13.79 |
| Virginia | 13.92 | Oklahoma | 13.29 |
| West Virginia | 13.97 | Texas | 13.26 |
| Alabama | 12.29 | Utah | 14.67 |
| Arkansas | 12.67 | Idaho | 14.38 |
| Florida | 13.25 | Minnesota | 12.82 |
| Georgia | 13.28 | Montana | 13.57 |
| Louisiana | 12.76 | Nebraska | 12.76 |
| Mississippi | 13.62 | North Dakota | 12.41 |
| North Carolina | 13.00 | Oregon | 13.89 |
| South Carolina | 13.15 | South Dakota | 12.90 |
| Tennessee | 11.72 | Washington | 12.93 |
| Illinois | 13.97 | Wyoming | 15.08 |
| Indiana | 13.71 | All States | 13.32 |
| Iowa | 12.22 | | |

[1] Reflects the average daily salary of all county committee employees working on all programs.

Mr. WHITTEN. We could spell out in this report this time that latitude should be given to State and county committees by not filling vacancies, to use that money to pay fewer people on a more comparable basis with others, so that this thing wouldn't occur again, where they would drop way back; would that be carried out if the committee should see fit to write it, no controlling law?

Mr. MANWARING. I failed to answer your question, and may I go back to a statement that was made previously, by bringing these up comparable to other persons, to persons in the Federal service.

We went back to the persons in the Federal service at the county level, and using that as a basis for determining about what should be done with these employees who were not in Federal service or not considered to be in the Federal Service, we attempted to bring them just as close to those as we could at that time.

This was the very basis on which we established the CO grades, the grades we set up. We put those in there for the purpose of having some kind of a standard over the country which could be used

as a basis for determining where a man ought to be. When we had finished that, when we had finished setting up the workload basis of determining the comparability between our employees and other Federal employees, then we established these grades, and went ahead with them. We never got finished with the job, because we took, first, the county office managers, then the employees in the county office, and then the field force, and were finally told, Well, go ahead and do it, but you can't have any more money to do it with. So we did the very best we could.

Last year you authorized a 10 percent increase for employees, which was applied just as you asked us to apply it, 10 percent on each of those employees, as they had been set up.

Now, if we can get back to, and I am not sure I fully understand, I may be misunderstanding your proposal, but if we go back to what I thought I heard you say, we would disrupt entirely our plan as established, and this may be the wrong plan, and maybe we could have a better one; but we would disrupt the plan by permitting some counties to upgrade their employees while others could not.

Mr. WHITTEN. Wait a minute. This whole civil service system, if I may say so, is conducive to increased numbers. It is geared up that way. For that reason, the freedom we have had here of not being on the civil service has given us some latitude. But how do your salaries compare now? You say the salaries you pay compare favorably with those received by other Federal employees.

Mr. MANWARING. Not quite in some areas. We have had to make adjustments in view of program changes.

Mr. WHITTEN. Would it be wise to put a premium on number of people, on a State committee or county committee, to hold the total number of employees down, and thereby keep their employees on a comparable basis instead of coming to us, Congress, every once in a while for additional money? I thought there were some ill effects from not being on civil service; but, from the governmental standpoint it is one of the benefits that you can pull down members when you don't need so many, so as to pay them at a proper rate.

I have never been a party to repealing that. I was not aware that the Department was doing it. I think it is unsound. I just am one member here. If I cannot sell my views to the subcommittee, it just ends there. But I do think you should put a premium back on the qualifications. We should look to how much that State is spending in administration. If they can do it with less money and fewer people, and pay them right, it is sound business.

Mr. MANWARING. Mr. Whitten, we think we have done that very thing. It is true in your State your people were good men. They were outstanding. They were graded high.

Mr. WHITTEN. Isn't it true, too, that my State had about the lowest rate of administrative cost in the program of any State in the country?

Mr. WANWARING. I think so, but let me point to some figures. In 1958, we had at the county level 28,916 man-years of employment.

Now, in 1960, it is estimated we will have 22,860 managers. We have accomplished that in areas where we thought they were overemployed, in areas where we have had reductions in the program, like

the acreage reserve and the corn program. These employees have come out of that area as we have proceeded with this plan.

Before we had the plan, we had no basis for determining, first, what the workload was. Second, how many people were needed to carry out this workload. Because we were on a system whereby we, in general, allocated to a State for county office work what they had had before, and then let them allocate it back out again, not knowing what their workload was, how they used the workload in determining that, and we think, about the application of the plan you permitted us to put in effect, we have accomplished the very thing you asked.

Mr. WHITTEN. Let me put it this way, that I want to disavow in the record, ever, any intent of supporting what you put into effect personally. I think it resulted in what you did, in that the State that was greatly overstaffed, got most of the money, in my opinion.

Mr. MANWARING. We pulled the staff down in those States, after we had put the county office manager at the rate where he should be, according to his workload.

Mr. WHITTEN. Now, in the doing of it, I think there are two guide rules. One is to the total administrative cost as compared with the workload that they have in the States. But if a State committee, and you say Federal Government doesn't claim these employees to the point of giving them Federal status—I think it is a mistake not to give that State committee, and that county committee the right to use fewer employees and pay them properly. I think that is about what you have done, and I hope that the committee will go along with reinstating the right of a State and county committee to hold down the number of employees and pay them in line with prevailing rates. I have worked with the civil service system and know it is built on numbers—the more people you have under you the more your job is and the more you have taken over.

Mr. MANWARING. That is not this system. I want to make that clear, that we did not pattern this after the civil service. We did not follow that plan. We followed the basis of workload, not the number of people that were under the county office manager.

Mr. WHITTEN. Who made the survey for you?

Mr. MANWARING. We made it ourselves.

Mr. WHITTEN. Didn't you hire some ex-civil service man to make your survey?

Mr. MANWARING. We used our own personnel.

Mr. WHITTEN. Wasn't it some civil service man who had been with the civil service?

Mr. MANWARING. No, sir.

Mr. WHITTEN. I was so advised. I don't know.

Mr. MANWARING. No. I will say that it has been the wisdom of your committee—you decide on a plan and it is so indicated in the appropriation language, we certainly will carry it out to the letter—that is in answer to the question I did not answer fully a while ago.

Mr. WHITTEN. I hope you will.

Again, you seem to feel so strongly about what you have done, and I accept your sincerity. But so far as I am concerned, I was wholly unaware until after the fact that this approach had been made. I am not discussing whether we should undo everything that you have done; but if we start with what you have done and give to the county and the State committees the right to reduce employees, and if thereby they can pay fair salaries and keep good employees and do a better job cheaper, I think it should be reinstated. I don't think this is something that you can run from Washington.

Mr. MANWARING. May I ask this: Before you finally make a decision, will you give us a chance to show you in some detail what we did do with the funds made available, how we applied it in the different States, what has happened since that time, and the relationship of grade to workload?

Mr. WHITTEN. Since you studied it, I think you are entitled to put that in the record. I am not trying to foreclose you. What I am doing is just raising the point: Should we reinstate the power of the State and county committees to improve on what you have done, if circumstances permit it?

Mr. MANWARING. Certainly we didn't mean for this plan, and I think it does not work in the direction of limiting the State and county committees in their attempts to economize, and to do a better job than they have done.

Mr. WHITTEN. If in my State the State committee should feel that they have quite a number of workers they didn't need, what premium would there be on them doing anything to remove them? If they removed them, it would be that much less money you would send to that State. But if you put a premium on having fewer people but more qualified people, you help bring this total number down. You have got some help on that level, but you can't sit up here and run this thing.

Mr. MANWARING. We don't attempt to sit up here and run it, but we have worked out with the States workload and level of responsibility standards that we felt were adequate guides to a State in determining what grade an employee should have in a county office.

(Information requested follows:)

STATEMENT ON ASC COUNTY OFFICE CLASSIFICATION AND PAY PLAN

In the summer of 1955, with the approval of the House Committee on Appropriations, the Department undertook to develop a plan for improving operations in ASC county offices which would raise the qualification standards for employees in these offices and offer salaries comparable to those of regular Federal employees. County office manager positions were divided into four groups based on differences in the levels of responsibility in the offices. This was accomplished by establishing a series of factors which broadly measured (1) program variety, (2) volume of program work, and (3) the administrative responsibility in each of the offices. The counties in the highest classification were those with the really large and complex operations. The counties in the lowest group were primarily "one program-one man" offices. The major group of positions which remained were divided into two classes or groups. For these positions salaries comparable to GS–7 and GS–9 were established which were the grades predominantly used by FHA and SCS for county positions. At the same time, the minimum qualification standards for county office manager

positions were increased. This plan assures that managers with comparable responsibilities and workloads will be classified at the same grade level. The plan also charges State committees with the responsibility for requesting exceptions from the grade provided by formula for those positions in which the real level of responsibility is not adequately reflected by a strict application of the formula.

Guide lines for classifying other county office positions and field positions were also established and the qualification standards for these positions were also increased. In collaboration with State committee representatives a total of 46 standard jobs for county offices were set up and described. Provision was also made for individual counties and States to develop and use other job descriptions to fit situations not covered by the standard jobs. Final authority to classify all clerical and field jobs is delegated to State and county committees. In addition, for clerical employees, three levels of performance are recognized. There are entrance, journeyman, and specialist. Inexperienced clerical employees are started at the entrance level and are promoted to the journeyman level if and when they master the normal operation of the position and carry out those operations effectively with relatively little supervision. A specialist rating may be assigned to employees whose knowledge of programs, procedures, and performance is exceptionally and consistently outstanding.

Funds were requested and granted in the appropriation for fiscal year 1960 to increase county ASC salaries by 10 percent to provide the same increase which had previously been given to Federal employees. This was accomplished by raising the pay scales previously established. The old and new salary scales are as follows:

*Schedule of annual salary rates by grade for ASC county office employees (Effective July 1, 1958)*

| CO and COF grade | Rates within grade | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Longevity | | |
| | | | | | | | | X | Y | Z |
| 10 | 6,400 | 6,535 | 6,670 | 6,805 | 6,940 | 7,075 | 7,210 | 7,345 | 7,480 | 7,615 |
| 9 | 5,400 | 5,535 | 5,670 | 5,805 | 5,940 | 6,075 | 6,210 | 6,345 | 6,480 | 6,615 |
| 8 | 4,500 | 4,635 | 4,770 | 4,905 | 5,040 | 5,175 | 5,310 | 5,445 | 5,580 | 5,715 |
| 7 | 3,700 | 3,835 | 3,970 | 4,105 | 4,240 | 4,375 | 4,510 | 4,645 | 4,780 | 4,915 |
| 6 | 3,450 | 3,550 | 3,650 | 3,750 | 3,850 | 3,950 | 4,050 | 4,150 | 4,250 | 4,350 |
| 5 | 3,225 | 3,325 | 3,425 | 3,525 | 3,625 | 3,725 | 3,825 | 3,925 | 4,025 | 4,125 |
| 4 | 3,000 | 3,100 | 3,200 | 3,300 | 3,400 | 3,500 | 3,600 | 3,700 | 3,800 | 3,900 |
| 3 | 2,775 | 2,860 | 2,945 | 3,030 | 3,115 | 3,200 | 3,285 | 3,370 | 3,455 | 3,540 |
| 2 | 2,550 | 2,635 | 2,720 | 2,805 | 2,890 | 2,975 | 3,060 | 3,145 | 3,230 | 3,315 |
| 1 | 2,325 | 2,410 | 2,495 | 2,580 | 2,665 | 2,750 | 2,835 | 2,920 | 3,005 | 3,090 |

*Schedule of annual salary rates by grade for ASC county office employees (Effective July 1, 1959)*

| CO and COF Grade | Rates within grade | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Longevity | | |
| | | | | | | | | X | Y | Z |
| 10 | 7,000 | 7,150 | 7,300 | 7,450 | 7,600 | 7,750 | 7,900 | 8,050 | 8,200 | 8,350 |
| 9 | 6,000 | 6,150 | 6,300 | 6,450 | 6,600 | 6,750 | 6,900 | 7,050 | 7,200 | 7,350 |
| 8 | 5,000 | 5,150 | 5,300 | 5,450 | 5,600 | 5,750 | 5,900 | 6,050 | 6,200 | 6,350 |
| 7 | 4,100 | 4,250 | 4,400 | 4,550 | 4,700 | 4,850 | 5,000 | 5,150 | 5,300 | 5,450 |
| 6 | 3,810 | 3,920 | 4,030 | 4,140 | 4,250 | 4,360 | 4,470 | 4,580 | 4,690 | 4,800 |
| 5 | 3,560 | 3,670 | 3,780 | 3,890 | 4,000 | 4,110 | 4,220 | 4,330 | 4,440 | 4,550 |
| 4 | 3,310 | 3,420 | 3,530 | 3,640 | 3,750 | 3,860 | 3,970 | 4,080 | 4,190 | 4,300 |
| 3 | 3,060 | 3,155 | 3,250 | 3,345 | 3,440 | 3,535 | 3,630 | 3,725 | 3,820 | 3,915 |
| 2 | 2,810 | 2,905 | 3,000 | 3,095 | 3,190 | 3,285 | 3,380 | 3,475 | 3,570 | 3,665 |
| 1 | 2,560 | 2,655 | 2,750 | 2,845 | 2,940 | 3,035 | 3,130 | 3,225 | 3,320 | 3,415 |

There is no incentive under the present classification plan for State and county ASC committees to keep unneeded or inefficient employees on the roles. To the contrary, it is estimated that there will be a reduction of over 3,000 man-years of employment in the 1960 fiscal year as compared to 1959. This reduction is being made primarily in the areas where program loads have been reduced as a result of the elimination of corn acreage allotments and the acreage reserve program.

State and county committees are under continuous instruction to eliminate any inefficient employee who may be found and to hold expenses to the barest minimum compatible with providing adequate services to participating farms. Budgets are continuously reviewed and compared with workloads with a view to reducing any unessential expenditures.

Mr. WHITTEN. You were unable to get them included in other pay raises, and we ended up through this committee having to give a flat sum trying to bring it up; it came about a year late, did it not?

Mr. MANWARING. Exactly a year.

Mr. WHITTEN. About a year late. So, presumably, you are not going to be able to hold them on a fair basis with others, judging by the past, and you are also going to have them trailing behind unless you enable the State committee to keep this comparison up by reducing the total number of people.

Mr. MANWARING. Mr. Whitten. We think we have, No. 1, the quality of our people up in all States. No. 2, that we have the quantity down in all States. This just means that if we attempt to do it in the manner in which you are indicating, that none of them will be able to get up and follow, and I can see only one alternative.

Mr. WHITTEN. That is what you believe down here in the Department. Maybe you are right. I certainly think the folks are good here that I know, but I am saying, should we return to the State committee the right to help you a little bit by giving them the power to run their own shop, and if they want to take the money and spread it with fewer people by not filling vacancies, who are better qualified to hold the overall cost down, what's wrong with that?

Mr. MANWARING. I wouldn't argue against it for a minute, if they will do it.

Mr. WHITTEN. If they don't do it, what harm is done?

Mr. MANWARING. None.

Mr. WHITTEN. We agree.

Mr. MANWARING. Just so long as you let us go ahead, and also push some of the numbers down a little bit, where we know, and, as you have indicated, you knew that there were too many. We have to work on that.

Mr. WHITTEN. I am quoting others. I am not going to say that I know that there have been too many. I suspect in every area you probably have more people some time of the year than you need, and you have much fewer at some time. That is one of the problems we have in congressional offices. I do know that is what I was told, and from the record it appears that in many States they had many times more people for the same job than they had in other States to start with. The States that had the lowest administrative cost seemed to have the fewer people, and paid the better salaries. That being true, I would like to give a little bit of a premium, if I could, to the

State committees, to try to keep current with other employees, if they could find ways to not fill vacancies and hold the total number down.

Mr. MANWARING. I want to point out, though, that if we have continual Federal pay increases, we will have to have some means of taking care of these county employees for those increases, other than this, because there won't be enough.

Mr. WHITTEN. I see you are going to have a problem there. Of course, you are kind of like Mr. Koger here. He didn't want to tell the local folks what to do; he would just have us change the rules so he can tell them what they cannot do.

Mr. MANWARING. No; I am perfectly willing, if they can cut employment down; but there is a problem here, that the county in our own State, take two counties in your own State, or two, one in yours or one in Mr. Marshall's. We consider the workload in your county to be about on the same level with his, and because your people say, Now, we have cut our employment, we cut down, and therefore we will raise our man up a couple of hundred dollars. But over there they don't cut it down or can't cut it down, for some other reason, and he immediately thinks, if your workload is the same, you ought to be on the same level.

Mr. WHITTEN. There is no way in the world for you to sit in Washington and tell about workloads in Tippah, and Tallahatchee, and all that. You can spot check it and all that.

I am not talking about getting ahead of anybody. In my State it worked very well when they had that kind of an approach to these problems. Again, I am not recommending firing anybody. I am not recommending letting these employees get ahead of other employees, but I do say that when you take away from the State committee the right to give a premium in holding the number down, and especially where it shows they have a very low administrative cost, that it is a

mistake, and it is a mistake in the direction of civil service system's weakness.

Mr. MANWARING. We will be glad to put that in operation, and promise to do it the way you say to do it; but I want to make this statement: That it isn't necessarily true that because in your State they were at a higher level, in other States at a lower level, they were working with more employees or less effectively.

Mr. WHITTEN. If you go back to our investigations, and if you can go back to the statement here about the total cost of administration in the various States, you will find wide disparities, and you will find lower administrative cost in those States that held their personnel down.

Mr. MANWARING. There isn't any question but that there is disparity, but not in all places.

Mr. WHITTEN. I am not going to belabor this question further, because it is an old story, and we have gotten both sides of the debate in the record, so I pass the witness.

COST BY STATE OF ADMINISTERING THE ACP

Mr. MARSHALL. Mr. Manwaring, I wonder if you could place in the record the increase in money by each State for the administration of the ACP, of the county committees, all of the work that they do, or did in 1952 fiscal year as compared with 1959 fiscal year?

Mr. MANWARING. You want this for all employees?

Mr. MARSHALL. Or for the county committees—all employees working for the county committee in each State, by States. Also indicate a plus or a minus, whether it is increase or decrease in percentage for each State.

Also do that same thing for the number of people employed by the county committee in each State.

Mr. MANWARING. Yes, sir. I was thinking of the tables we have. I am sure we can do it, but we would look at them and make sure they are accurate.

Mr. MARSHALL. If you have a table prepared which gives the same information, that is acceptable.

Mr. MANWARING. We will do that.

(Information requested follows:)

*Expenses and man-years, ASC county committees, agricultural conservation program, fiscal years 1952 and 1959*

| State or territory | Fiscal year 1952 | | Fiscal year 1959 | | Percent of increase (+) or decrease (−) | |
|---|---|---|---|---|---|---|
| | Man-years | Expense | Man-years | Expense | Man-years | Expense |
| Connecticut | 18.7 | $45,173 | 11.9 | $43,742 | −36.4 | −3.2 |
| Delaware | 9.7 | 23,362 | 8.3 | 30,411 | −14.4 | +30.2 |
| Maine | 45.5 | 108,998 | 31.2 | 114,564 | −31.4 | +5.1 |
| Maryland | 58.0 | 138,865 | 31.8 | 116,762 | −45.2 | −15.9 |
| Massachusetts | 29.1 | 69,595 | 27.5 | 101,087 | −5.5 | +45.3 |
| New Hampshire | 26.4 | 63,274 | 19.9 | 72,969 | −24.6 | +15.3 |
| New Jersey | 38.7 | 92,617 | 21.2 | 77,951 | −45.2 | −15.8 |
| New York | 180.8 | 432,935 | 135.7 | 498,792 | −24.9 | +15.2 |
| Pennsylvania | 137.8 | 329,666 | 110.5 | 406,082 | −19.8 | +23.2 |
| Rhode Island | 7.2 | 17,338 | 4.9 | 17,868 | −31.9 | +3.1 |
| Vermont | 41.0 | 98,278 | 31.0 | 113,779 | −24.4 | +15.8 |
| Virginia | 112.4 | 269,084 | 96.8 | 355,692 | −13.9 | +32.2 |
| West Virginia | 91.2 | 218,409 | 67.2 | 246,807 | −26.3 | +13.0 |
| Alabama | 212.5 | 508,583 | 102.1 | 375,322 | −52.0 | −26.2 |
| Arkansas | 238.8 | 571,891 | 156.1 | 573,326 | −34.4 | +0.3 |
| Florida | 100.3 | 240,324 | 72.8 | 267,530 | −27.4 | +11.3 |
| Georgia | 261.9 | 627,271 | 230.6 | 847,287 | −12.0 | +35.1 |
| Louisiana | 174.7 | 418,357 | 107.6 | 395,396 | −38.4 | −5.5 |
| Mississippi | 223.6 | 535,549 | 142.1 | 522,015 | −36.4 | −2.5 |
| North Carolina | 250.6 | 600,158 | 176.2 | 647,507 | −29.7 | +7.9 |
| South Carolina | 131.8 | 315,659 | 76.2 | 280,022 | −42.2 | −11.3 |
| Tennessee | 171.5 | 410,757 | 152.4 | 559,901 | −11.1 | +36.3 |
| Illinois | 344.8 | 825,109 | 164.6 | 604,852 | −52.2 | −26.7 |
| Indiana | 237.0 | 567,621 | 154.6 | 568,235 | −34.8 | +0.1 |
| Iowa | 315.5 | 755,680 | 168.4 | 618,786 | −46.6 | −18.1 |
| Kentucky | 263.9 | 632,060 | 253.1 | 931,384 | −4.1 | +47.4 |
| Michigan | 243.5 | 583,205 | 110.8 | 407,126 | −54.5 | −30.2 |
| Missouri | 338.7 | 811,216 | 266.8 | 980,391 | −21.2 | +20.9 |
| Ohio | 216.7 | 518,943 | 113.3 | 416,423 | −52.3 | −19.8 |
| Wisconsin | 279.3 | 668,800 | 171.4 | 629,743 | −38.6 | −5.8 |
| Arizona | 34.1 | 81,636 | 23.9 | 87,819 | −29.9 | +7.6 |
| California | 187.8 | 449,823 | 110.0 | 407,890 | −40.9 | −9.3 |
| Colorado | 121.6 | 291,288 | 81.6 | 299,892 | −32.9 | +3.0 |
| Kansas | 224.0 | 536,453 | 154.5 | 567,777 | −31.0 | +5.8 |
| Nevada | 22.6 | 54,191 | 18.5 | 67,898 | −18.1 | +25.3 |
| New Mexico | 84.5 | 202,345 | 48.2 | 177,105 | −43.0 | −12.5 |
| Oklahoma | 359.8 | 861,715 | 156.5 | 575,226 | −56.5 | −33.2 |
| Texas | 898.7 | 2,151,996 | 435.1 | 1,598,787 | −51.6 | −25.7 |
| Utah | 83.2 | 199,355 | 39.0 | 143,189 | −53.1 | −28.2 |
| Idaho | 117.9 | 282,234 | 57.4 | 210,672 | −51.3 | −25.4 |
| Minnesota | 350.2 | 838,798 | 159.5 | 585,947 | −54.5 | −30.1 |
| Montana | 115.7 | 276,966 | 74.8 | 274,956 | −35.4 | −0.7 |
| Nebraska | 253.5 | 607,070 | 115.7 | 425,223 | −54.4 | −30.1 |
| North Dakota | 151.5 | 362,818 | 97.4 | 357,993 | −35.7 | −1.3 |
| Oregon | 87.5 | 209,593 | 63.8 | 234,566 | −27.1 | +11.9 |
| South Dakota | 200.7 | 480,578 | 114.6 | 421,306 | −42.9 | −12.3 |
| Washington | 124.1 | 297,338 | 70.4 | 258,599 | −43.3 | −13.0 |
| Wyoming | 64.2 | 153,845 | 51.9 | 190,745 | −19.2 | +24.0 |
| Alaska | | | | | | |
| Hawaii | | | | | | |
| Puerto Rico | | | | | | |
| Total, all States | 8,283.2 | 19,836,819 | 5,090.8 | 18,707,542 | −38.5 | −5.7 |

INFORMATION AVAILABLE TO FARMERS

Mr. MARSHALL. I want to commend you, Mr. Koger, and I want to say that the people in my district have been much better informed, and I want to commend you for getting that information out to the farm people. A couple of years ago I was disturbed at the lack of information that my farmers were receiving; but in the past year I think you people have done a good job of informing the community, and also doing a good job of letting the farmers know what was available; and I want to commend you for it.

CHANGES PROPOSED FOR 1961

Mr. NATCHER. Mr. Chairman, I had hoped to live to see the day that my friend and neighbor, Mr. Koger, would appear before our committee one year and request the $250 million authorization for the next year. Certainly, he doesn't expect me to go along on the $100 million authorization requested.

Mr. Koger, how many participants do you have in this program?

Mr. KOGER. 1,119,000 farmers participated in 1958.

Mr. NATCHER. Have you made any study as to what saving, if any, would take place if the changes in the national program that you set forth in your statement were approved by this committee?

Mr. KOGER. You mean for the practices that we have proposed to curtail——

Mr. NATCHER. Yes, sir.

Mr. KOGER. No, we have not. Mr. Hunt, you have done some work along that line. Have you reached any conclusion?

Mr. HUNT. We haven't made any final conclusion, Mr. Natcher. Many of these changes would just eliminate a small part of the payment for the practices.

For example, the elimination of the removal of stone walls and hedgerows would be a small part of the practice that that is used in connection with. That is not a single practice by itself. It is merely one step that the farmer does in carrying out another practice.

We don't have reports that separate these components so that we can tell exactly how much money has been paid for each of these components that are involved. There probably could be an estimate made for many of them.

On the one I mentioned, we have tried to estimate that, and I believe that we came up with about $200,000 for that single item of stone walls and hedgerows.

Mr. NATCHER. Have you given any study to your third proposal in so far as the amount of money is concerned?

Mr. KOGER. On page 7?

Mr. NATCHER. On page 7.

Mr. KOGER. I don't think it would have a great bearing on the amount of funds used. It would mean that it would help us to implement the policy of not bringing new land into production.

ROCK PHOSPHATE PRACTICES

Mr. NATCHER. Mr. Koger, isn't it true that of the three proposals that you make today to the committee, the second proposal is probably the one involving any considerable sum of money?

Mr. KOGER. Rock phosphate?

Mr. NATCHER. Isn't that true?

Mr. KOGER. That would be the largest.

Mr. NATCHER. Give me some idea about how much that would amount to, approximately.

Mr. HUNT. The total that was paid for rock phosphate practices of 1958 was about $4.5 million. Under the proposal that, of course, would not all be eliminated. The eligibility for some farmers would be reduced or eliminated under the proposal, but how much reduction from this $4.5 million, we have not made an estimate.

Mr. NATCHER. I think, Mr. Chairman, that as far as these three proposals are concerned, that certainly serious consideration should be given before any one of them is approved.

Personally, just speaking as one member of the committee, Mr. Koger, I think it would be a mistake to approve any one of the three that you suggest to the committee.

I do want to thank you for your fine statement, and Mr. Peterson, I want to thank you for your statement, and say to you, gentlemen, that the ACP program service is one of the great programs that we have in this country. It has meant a lot to my section of the United States.

You gentlemen in this program have many accomplishments to your credit, and I want you to know that I appreciate the fine work that you are doing.

Mr. SANTANGELO. No questions.

Mr. WHITTEN. Mr. Michel?

Mr. MICHEL. Mr. Koger, over here on page 4, where you were talking about the possible elimination of section 8(e), and the fact that under the 1958 program, 75 percent of all participants received these automatic increases. Now, with the elimination of this section, what effect will this have moneywise, any effect?

Mr. KOGER. Approximately $10.5 million go each year to pay for the small payment increases.

Mr. MICHEL. For automatic increases?

Mr. KOGER. Yes.

Mr. MICHEL. So, elimination of this provision would mean reduction of the $10.5 million among those now receiving what, $200 or less?

Mr. KOGER. It means the States would have $10.5 million more to allocate to the farmers.

Mr. MICHEL. So there actually wouldn't be elimination, but just a change in formula of distribution?

Mr. KOGER. That's true.

Mr. MICHEL. In effect, on these policy changes, the one involving the 2-year requirement instead of a 1-year; which one was that?

Mr. KOGER. No. 2 on page 8.

Mr. MICHEL. Let's take the first one here, the cost sharing for drainage and irrigation practices: 2 of the last 5 years, apparently, it is proposed to increase this to 4 of the last 5 years.

Mr. KOGER. True.

Mr. MICHEL. It would seem to me that this change would certainly tend to put the program on what the chairman has referred to as a definite land conservation practice rather than tend toward a program which I have characterized before as payments for simply increasing production.

Mr. KOGER. It means that land would have to have been in production at least 4 out of the past 5 years in order to be eligible, whereby now it is 2 out of the last 5 years.

Mr. MICHEL. Where was the point where we had eligible grasses and legumes occupy the land for at least two growing seasons? On this point it would seem to me that we definitely would be moving in the direction of a land conservation program, rather than continuing

the practice in my area of participating only 1 year, and then right back into a commercial grain crop again——

Mr. WHITTEN. Gentlemen, I wish to thank both of you. We have argued back and forth here; we do respect your views, and we realize that both of you here are speaking for yourselves, while at the same time it is in connection with the budget that has been determined at the policy level. We have the highest regard for each of you and your associates here and the fact that we have different viewpoints, I guess, is American.

We all recognize the job to be done in the field of conservation, and I trust that in our differences we may end up with the best results for the good of the country.

Mr. PETERSON. I am sure, Mr. Whitten, our differences are more apparent than real so far as total objective is concerned, and I can assure that we have tried to carry out the desires of this committee and of the Congress, as expressed in your reports every year.

Mr. WHITTEN. Your recommendation will have our sincere consideration.

(Whereupon, the committee recessed.)

# LIST OF WITNESSES


| | Page |
|---|---|
| Brown, C. B | 551 |
| Byerly, Dr. T. C | 109 |
| Clarkson, Dr. M. R | 109 |
| Dashner, L. A | 1 |
| Dorny, C. H | 551 |
| Elting, Dr. E. C | 109 |
| Ferguson, C. M | 501 |
| Gardberm, K. B | 485 |
| Grant, C. L | 1, 66, 109, 485, 501, 551, 656 |
| Herrmann, Dr. O. W | 109 |
| Hilbert, Dr. G. E | 109 |
| Hunt, J. M | 656 |
| Irving, Dr. G. W., Jr | 109 |
| Jemison, Dr. G. M | 109 |
| Johnson, Dr. S. E | 109 |
| Kellogg, C. E | 551 |
| Kepner, P. V | 501 |
| Knapp, J. G | 485 |
| Knoblauch, Dr. H. C | 109 |
| Koffsky, N. M | 66 |
| Koger, P. M | 656 |
| Luker & Cyril | 551 |
| Lyman, L. E | 551 |
| Manwaring, H. L | 656 |
| Murphy, W. T | 551 |
| Peterson, E. L | 109, 485, 501, 551, 656 |
| Pollard, Frank | 551 |
| Popham, Dr. W. L | 109 |
| Randall, C. K | 66 |
| Ritchie, F. G | 656 |
| Roberts, R. S | 1 |
| Samuels, J. K | 485 |
| Schruben, L. M | 501 |
| Shaw, Dr. B. T | 109 |
| Spencer, F. H | 109 |
| Stephens, Edmund | 109 |
| Stiebeling, Dr. H. K | 109 |
| Van Dersal, W. R | 551 |
| Walker, H. D | 485 |
| Wells, O. V | 66 |
| Williams, D. A | 551 |
| Williams, H. R | 551 |
| Wirin, H. B | 656 |

# INDEX

## A


Page

Agricultural Adjustment Act of 1938, Bills to amend ..... 138
Agricultural Conservation Program Service ..... 17, 656
  Administration, Cost of by state ..... 711
  Administrative costs ..... 667
  Administrator, General statement of ..... 689
  Advance authorization, 1961 ..... 665, 667, 672
  Changes or deletion of practices, Provision preventing ..... 668
  Cost sharing ..... 680
  Distribution of funds among counties, Restriction on ..... 669
  Emergency conservation measures ..... 690
  Employees, Relation to federal employees ..... 698
  Emergency funds ..... 666
  Great Plains Conservation Program, Relation to ..... 685
  Land-use adjustments ..... 690
  Language changes ..... 666
  National inventory of soil and water conservation needs ..... 691
  Normal farm productions, Certain practices necessary for ..... 688
  Participation to average in ACP, Relation of ..... 682
  Payments to farmers ..... 674
  Policy changes ..... 692
  Practices applicable to particular areas ..... 687
  Practices for increased productivity ..... 673
  Practices selected ..... 696
  Program, Nature of the ..... 678
  Program, 1961 ..... 692, 713
  Recurring practices ..... 683
  Rock phosphate practices ..... 713
  Rural development ..... 690
  Small cost increase provision ..... 665, 668, 691
  Technical services ..... 667, 691
Agricultural Marketing Service (*see also* Part 2, this hearing) ..... 17
  Orlando, Fla., Horticultural Field Laboratory at ..... 60, 452
  School lunch program ..... 18
Agricultural Research Service ..... 7, 109
  Administrator, General statement of ..... 144
  Construction of facilities ..... 14, 450
    Gainesville, Fla., Entomology laboratory at ..... 60, 133, 188
  Laboratories:
    Construction, Nonrecurring items of ..... 122
    Corn and other grain insects laboratories ..... 197
    Florida, Laboratories in ..... 60
    Gainesville, Fla., Facilities at ..... 60, 133, 188
    Kentucky, Need for soil and water conservation facilities in ..... 189
    Kerrville, Tex., Entomology station at ..... 176
    Logan, Utah, Crops laboratory ..... 195
    National Animal Disease Laboratory, Ames, Iowa ..... 121, 122
    National Arboretum ..... 175
    Soil and water laboratories ..... 14, 140, 189, 396
    State College, Miss., Boll Weevil Laboratory ..... 195
    Library services, Transfer of ..... 64, 162
  Meat Inspection:
    Activities ..... 381
    Costs of ..... 132
    Inspectors, Number of ..... 388
    Workload ..... 333

Agricultural Research Service—Continued
Payments to states and Research in Alaska, Puerto Rico, and Virgin Islands, Administration of — Page 305
Plant and Animal Disease and pest control:
Animal disease control and eradication:
Brucellosis eradication — 61, 123, 181, 366, 370, 389, 406
National Animal Disease Laboratory, Ames, Iowa — 121, 122
Psoroptic sheep scabies — 374
Scrapie disease of sheep — 168, 330
Screw worm eradication — 123, 131, 327
Tuberculosis eradication program — 192, 329, 364
Vesicular exanthema — 145, 333
Animal inspection and quarantine:
Foreign disease and pests, Inspection service against threat of — 131, 145, 306
Workload — 322
Justification of the estimates — 335
Plant pest control:
Barberry eradication — 338
Citrus black fly — 145, 174, 339, 342
Emergency outbreaks, Releases from contingency fund for — 358, 387
European chafer control — 338, 341
Fire Ant, Imported — 132, 313, 346, 347
Golden nematode eradication — 315
Gypsy moth control — 343, 345
Hall scale — 145
Hoja Blanca Disease of rice — 317
Japanese Beetle — 346, 348
Khapra Beetle — 145, 349
Mexican fruit fly control — 343, 344
Pear decline — 310
Pesticide regulation — 131
Pink Bollworm Control — 352, 354
Soybean cyst nematode — 145, 351
Sweetpotato weevil control — 355, 357
White fringed beetles — 356, 357
Witchweed eradication — 145, 319, 359
Plant quarantine:
Foreign diseases and pests, Inspection service against threat of — 131, 145, 306
Workload — 322
Research:
Farm research:
Animal disease research — 151
Decrease in — 136
Entomology research — 152
Farm economics:
Assets used in agricultural production, 1940–59 — 235
Capital investment to farm income, Relation of — 240
Capital needed for farming — 233
Capital per farm, 1940 and 1959, Value of — 236
Dollar value of farmland, Change in — 212
Farm debt, 1910–60 — 237
Farm production per acre and per animal — 212
Farm income and real estate values — 214
Investment per worker in manufacturing and agriculture, 1955–59 — 234
Net farm income, commercial farms, by type and location, 1958 with comparisons — 213
Non-realestate farm loans — 215
Purchases by land contracts — 215
Taxes paid, Farm Real estate — 216
Gastroenteritis of swine — 300
High amylose corn and grain sorghums — 176
National Arboretum — 175
New crop varieties — 146

Agricultural Research Service—Continued
Research—Continued
Farm research—Continued
Pea virus research 311
Reduced costs resulting from 139
Shade trees and ornamental research 177
Soil and water conservation 152
Kentucky, Need for facilities in 189
Tobacco research 185, 393
Liquified petroleum gas, Use of 191
Utilization research, & Redirection of funds to 113, 143, 250
Federal-state-industry cooperation 154
Home economics 152, 300
Honor awards 159
Liquid petroleum gas, Research concerned with 192
New crop breeding lines 151
New tobacco research tool 151
Pesticide residues, Development of chemicals and biological measures to reduce or avoid hazards from 114, 119, 219
Additional research proposed 221
Ample pomade for dairy cattle feeding 229
Cranberry problem, History of 232
Delaney Amendment, Administration of 117
Federal cooperation in research 115, 226, 228
Health, Education and Welfare, Department of, Need for cooperative research with 115, 226, 228
Heptachlor situation 230
Increase, Need for 220
Industry research 232
Insect control methods, Research on 115, 120
Laws relating to pesticide chemicals 226
Man, Determining effect of residues on 119
Methods of insect control, Proposed research on 120
Registering agricultural chemicals, Procedure for 230, 320
Rigorous requirements, Effect on number of chemicals 231
Utilization of funds 223
Plant physiology, Major discovery in 151
Program, Status of 198
Shifts in programs 155
Special fund 123, 158, 168, 261
Utilization research under 261
Utilization research:
Animal fats 295
Cotton, classification of 399
Cotton, wool, and other fibers 284
Farm research funds, redirection of 113, 143, 250
Grains, cotton, and animal fats 243, 284, 295, 298
Increase for 112
Oilseeds 265, 290
Public service patents 246
Tobacco research 185, 274, 393
State Experiment Stations 135, 154, 454
Basic research at 463
Budget increase, Need for 464, 479
Funds granted directly to states 478
Grant funds to states, Formula for 481
Liquified petroleum gas, Research on use of 191
New and completed projects 466
Obligations of state stations 462
Progress of programs 459
Regional research projects 467
Salary costs 482
Soil and water conservation research 483
Cereals 250, 262, 267, 298
Developments in 153
Domestic and foreign currency programs 261
Raw material for industry, Agricultural products as source of 249

| | Page |
|---|---|
| Agricultural Research Service—Continued | |
| Salaries and expenses | 162 |
| Special foreign currency program | 7, 13, 142, 407 |
| Accomplishments to date | 442 |
| Agricultural attaches, Cooperation with | |
| Criteria for foreign research | 424 |
| Determination of use of foreign currencies | 13 |
| Estimated availability of foreign currencies | 411 |
| Foreign institutions, Projects planned with | 428 |
| Foreign institutions, Types of | 437 |
| Human nutrition research abroad | 443 |
| Justification of the estimates | 109 |
| Laws affecting use of foreign currencies | 10 |
| Poland and Yugoslavia, Foreign research in | 449 |
| Projects financed from | 142 |
| Public 480, Generation of foreign currency under | 446 |
| P.L. 480 funds, Research abroad with | 133 |
| Appropriations, 1960, and estimates, 1961 | 1, 32, 40 |
| C | |
| Commodity Credit Corporation (*see also* Part 3, this hearing) | 21 |
| Administrative expenses, Limitation on | 25, 27 |
| Auditing of | 24 |
| Capital impairment, Restoration of | 21 |
| Losses estimated, 1961 | 23 |
| Foreign currency programs, Credits under new procedures for | 61 |
| Special activities, Reimbursement for cost of | 25, 28 |
| Commodity Stabilization Service (*see also* Part 3, this hearing) | |
| Acreage Allotments and Marketing Quotas | 19 |
| Sugar Act program | 19 |
| Conservation Reserve program (*see also* Part 3, this hearing) | 19 |
| E | |
| Employee Health Benefit Costs | 4 |
| Expenditures, 1950–61 | 26 |
| F | |
| Farmer benefit programs, Budget expenditures for | 26, 27 |
| Farmer Cooperative Service | 485 |
| Farmers Home Administration: | |
| Farm ownership loans | 29 |
| Operating loans | 20, 29 |
| Soil and water conservation loans | 29 |
| Forest Service: | |
| Florida, Laboratories in | 60 |
| Federal Extension Service | 501 |
| Administrator, General statement of | 512 |
| Agents | 537 |
| Agriculture students, Decline in | 526 |
| Assistant Secretary of Agriculture, Statement of | 507 |
| Budget increases | 516 |
| Cooperative development of programs | 540 |
| Cooperative extension work, Payments and expenses | 501 |
| Farm and Home development | 513, 528 |
| Farm income | 523 |
| Federal funds, 1952–60, increases in | 518 |
| 4–H club work | 511, 515 |
| Home economics programs | 511, 514 |
| Marketing | 513 |
| Off farm people, Work with | 541 |
| Payments to State | 61 |
| Penicillin in milk, Reduction in | 550 |
| Rural development program | 510, 514, 527 |
| Increased funds for | 533 |

Federal Extension Service—Continued
Rural development program (*see also* this Subject, individual Services) — Page 14
Indians, Program for — 546
Kentucky, Program in — 538
Other extension work, Relation to — 528, 539
Pesticides, Problems relating to use of — 547
Pilot rural development counties — 534
Staffing patterns in counties — 540
Rural Electrification Administration (*see also* Part 2, this hearing) — 29
Salaries of workers — 541
Washington office staff of — 522, 543
Foreign Agricultural Service (*see also* Part 2, this hearing) — 18

G

General Agricultural Outlook — 66
Agricultural exports — 73, 95
Agricultural trends and current farm situation, Summary of — 67
Cash receipts from farm sales — 73
Crop acres, Exported — 98
Exports as percent of production — 99
Farm assets, Value of — 105
Farm enlargement, Purchases for — 104
Farm Land Values — 77, 103
Farm marketing bill — 90
Farmers' Prices — 77
Farm prices and income, 1939 and 1951–59, Selected data relating to — 68
Farmers' production expenses — 74
Favorable developments — 108
Food costs and consumer incomes — 84
Farm investment, Increase in — 75
Income of farm operators — 78
Planted crop acreages — 100
Prices paid by farmers — 69
Price support holdings — 101
Realized net farm income — 75
Relative cost of food — 86
Retail food dollar, Farmers' share of — 90
Technological trends — 106
Volume of farm output — 73
Wheat, cotton, and corn stocks — 99

H

H.R. 9946 and H.R. 9947 (to amend Agricultural Adjustment Act of 1938) — 138

M

Multiple benefit programs, Budget expenditures for — 26

P

Personnel:
Average annual positions, 1959–61 — 58
Increases for — 17

S

Soil Conservation Service — 551
ACP funds, Transfer for technical assistance — 555
ACP programs, Coordination with — 568
Administrator, General statement of — 556
Assistant secretary of Agriculture, Statement of — 551
Conservation accomplishments — 552
Conservation methods, Examples of effectiveness of — 641
Conservation operations — 553, 558, 566, 573
Construction obligations — 561

Soil Conservation Service—Continued
Districts: Page
Budget for 631
Farmlands in, Extent of 645
Staffing of 647
Eden Valley project, Completion of 565
Flood prevention 554, 563, 587
Army engineers projects, Relation to 594
Future requirement, Relation of current plans to 626
Great plains Conservation program 554, 564, 598
Hydroponics agriculture in Japan 624
Plant material centers, Status of 170
Seed production unit, Coffeeville, Miss 178
Limitations on projects 643
Other programs of the Department, Assistance to 565
Reclamation and Public works, Budget for 571
River Basin Activities 563
Rural development program, Participation in 573
Soil surveys 559
Progress of 634
Survey reports 647
Technical assistance, Transfer of ACP funds for 555
Twenty-fifth year anniversary of conservation program 556
Water conservation and utilization projects 604
Loans, Number and amount of 615
Planning funds, Decrease in 617
Potomac River Basin, Control of sediment in 608
Watershed protection 15, 553, 560, 574
Accelerated program, Increase cost of 637
Accelerated program, Need for 644
Accrued expenditure limitation 619
Budget for 634
Buffalo Creek Watershed 622
Corps of Engineers and Bureau of Reclamation, Comparison with 619
Delaware River Basin, Survey of 621, 622
Financial aspects of average projects 640
Interest and management of different type of water sheds 651
Pilot watersheds 562, 592
Planning, Funds for 585
P.L. 566 projects, Initial and total cost of 649
Wilderness area, Propriety of preserving 652

T

Tables, General budgetary 31
Appropriations and REA and FHA loan authorizations, 1952–60, and estimates, 1961 45
Average annual positions, 1959–61 58
Budget expenditures from appropriations, REA and FHA loan authorizations, and corporation and other revolving funds, 1952–59, an estimated, 1960–61 50
Estimates, 1961, compared with Appropriations and REA and FHA authorizations, 1960 32
Increases and decreases, estimates, 1961, compared with appropriations and REA and FHA loan authorizations, 1960 40
Receipts to Treasury from Department activities, 1959–61 53
Research and Education appropriations, 1952–61 56
Subappropriations, Appropriations and REA and FHA authorizations, 1959–61 35

Y

Yearbook of Agriculture 65

○

Page
631
645
647
565
3, 587
594
626
4, 598
624
170
178
643
565
571
563
573
559
634
647
555
556
604
615
617
608
0, 574
637
644
619
634
622
619
21, 622
640
651
62, 592
585
649
652

31

45
58

50

32

40
53
56

35

65